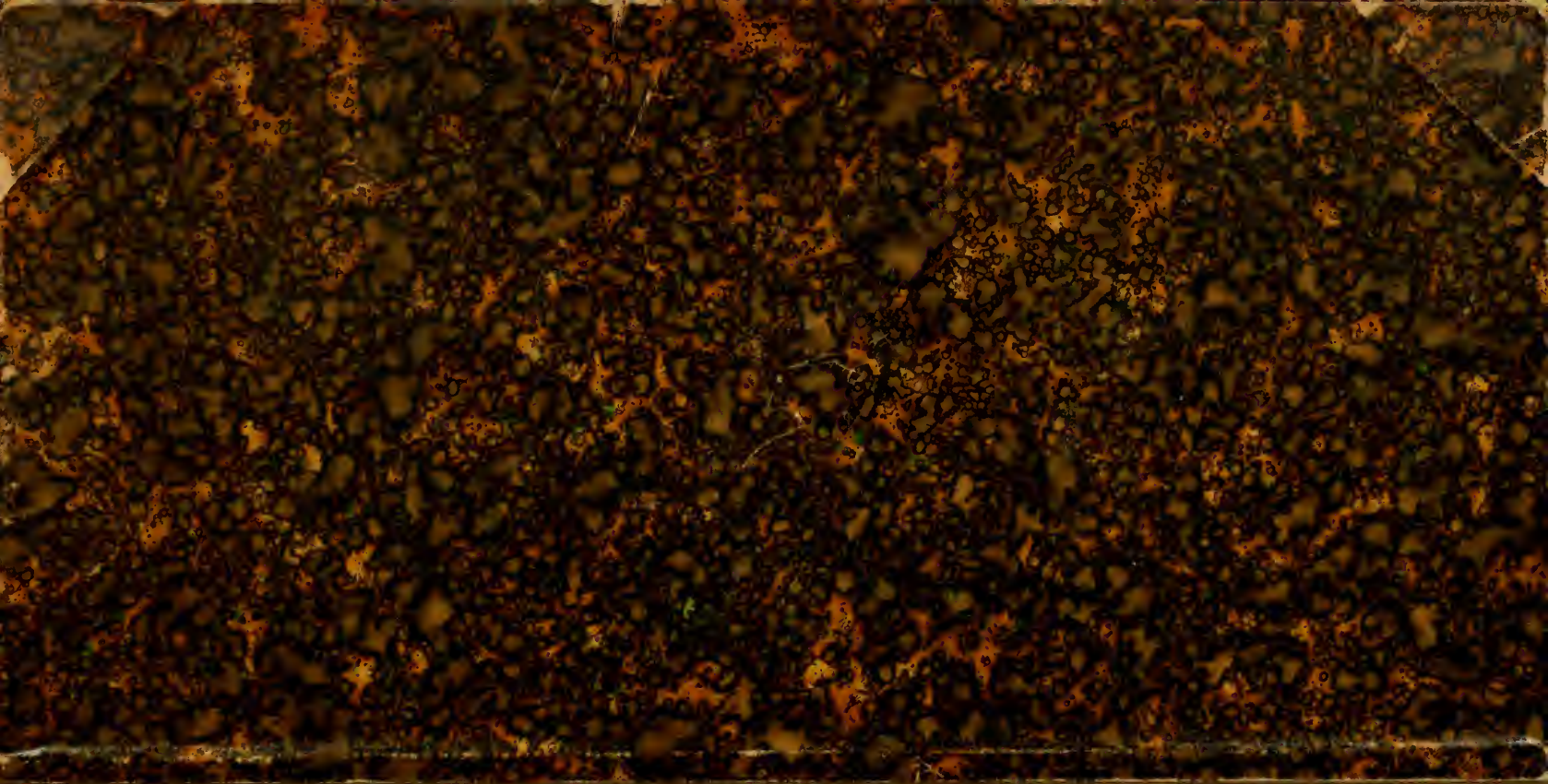
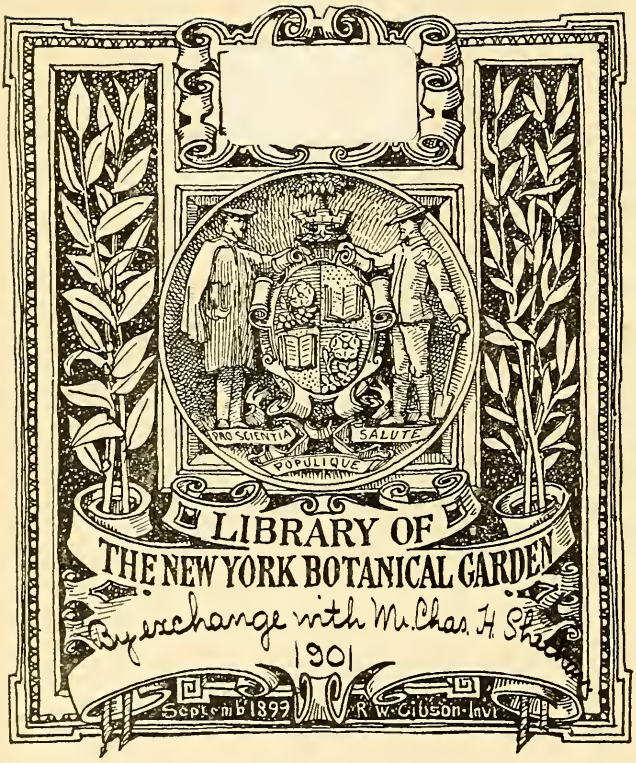
5-17-2017

1864 - Report of the California State Agricultural Society for 1863




PRO SCIENTIA
SALUTE
POPULIQUE
LIBRARY OF
THE NEW YORK BOTANICAL GARDEN
By exchange with Mr. Chas. H. Sh
1901
September 1899
R. W. Gibson. Invt.

TRANSACTIONS

OF THE

CALIFORNIA

State Agricultural Society,

DURING

THE YEAR 1863.

SACRAMENTO:
O. M. CLAYES, STATE PRINTER.
1864.

CONTENTS.

OFFICERS FOR 1863.

PRESIDENT.

HON. ISAAC DAVIS.....Yolo.

DIRECTORS.

Directors whose terms expire in January, 1864.

JAMES MCCLATCHY.....Sacramento.
G. R. WARREN.....San Joaquin.
MIKE BRYTE.....Yolo.

Directors whose terms expire in January, 1865.

R. J. WALSH.....Colusa.
C. H. GRIMM.....Sacramento.
ROBERT BECK.....Sacramento.

Directors whose terms expire in January, 1866.

WILLIAM H. PARKS.....Sutter.
CHARLES HOLBROOK.....Sacramento.
N. L. DREW.....Sacramento.

TREASURER.

E. B. RYAN.....Sacramento.

SECRETARY.

I. N. HOAG.....Yolo.

A COMPILATION

OF ALL THE LAWS NOW IN FORCE RELATING TO OR AFFECTING THE STATE AGRICULTURAL SOCIETY.

AN ACT TO INCORPORATE A STATE AGRICULTURAL SOCIETY, AND APPROPRIATE MONEY FOR ITS SUPPORT.

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. There is hereby established and incorporated a society to be known and designated by the name and style of the "CALIFORNIA STATE AGRICULTURAL SOCIETY," and by that name and style shall have perpetual succession, and shall have power to contract and be contracted with, to sue and be sued, and shall have authority to have and use a common seal, to make, ordain, and establish, and put in execution such by-laws, ordinances, rules, and regulations, as shall be necessary for the good government of said society, and the prudent and efficient management of its affairs; *provided*, that said laws, ordinances, rules, and regulations, shall not be contrary to any provision of this charter, nor the laws and Constitution of this State, or of the United States.

SEC. 2. In addition to the powers above enumerated, the society shall, by its name aforesaid, have power to purchase and hold any quantity of land not exceeding four sections, and may sell and dispose of the same at pleasure. The said real estate shall be held by said society for the sole purpose of establishing a model experimental farm or farms, erecting inclosures, buildings, and other improvements, calculated and designed for the meeting of the society, and for an exhibition of the various breeds of horses, cattle, mules, and other stock, and of agricultural, mechanical, and domestic manufactures and productions, and for no other purposes.

And it is further enacted, That if, from any cause, said society shall ever be dissolved, or fail to meet within the period of two consecutive years, then the real estate held by it, together with all the buildings and appur-

tenances belonging to said estate, shall be sold as lands are now sold by execution, and the proceeds deposited in the State Treasury, subject to the control of the Legislature.

AN ACT SUPPLEMENTAL TO AN ACT TO INCORPORATE A STATE AGRICULTURAL SOCIETY, APPROVED MAY THIRTEENTH, EIGHTEEN HUNDRED AND FIFTY-TWO, AND AMENDED MARCH TWENTIETH, EIGHTEEN HUNDRED AND FIFTY-EIGHT.

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. The general prudential and financial affairs of the society shall be intrusted to a Board of Agriculture, to consist of a President and nine Directors, five of whom shall constitute a quorum.

[Amended Section.]

SEC. 2. Said Board of Agriculture shall be elected at a general State Agricultural Convention, to be held at the Capital of the State, in the year one thousand eight hundred and sixty-three, in the month of March, and in the month of January every year thereafter, to consist of the life members and annual members of the State Agricultural Society, and from delegates from each County Agricultural Society within this State, incorporated under the general laws of this State for such corporations, and an equal number from each District Agricultural Society, also incorporated under the general laws of this State for such purposes; said delegates to be chosen at the annual fair or annual meeting of each such society next preceding the State Agricultural Convention; *provided*, said Convention, to be held in March, in the year one thousand eight hundred and sixty-three, may admit any person or persons representing any of said County or District Agricultural Societies, as the Convention may determine by a majority vote whether such persons shall have been elected by their respective County or District Societies as provided in this Act, or not.

SEC. 3. The Board of Agriculture shall, at its first meeting after its election, be divided by lot into three equal portions, (omitting the President,) one portion to continue in office one year, one portion two years, and one portion three years; one third of the number, together with the President, to be elected at the State Agricultural Convention annually thereafter; the Directors to hold office three years.

SEC. 4. The Board of Agriculture may, in the absence of the President, choose one of its other members temporary Chairman. They shall elect a Treasurer and Secretary, not members of the Board, prescribe their duties, fix their pay, and the said Treasurer and Secretary shall be subject to removal at any time by a majority of said Board.

SEC. 5. The Board of Agriculture shall use all suitable means to collect and diffuse all classes of information calculated to aid in the development of the agricultural, stock raising, mineral, mechanical, and manufacturing resources of the State; shall hold an annual exhibition of the industry and products of the State; and on or before the first day of January of each year in which the Legislature shall be in regular session,

they shall furnish to the Governor a full and detailed account of all its transactions, including all the facts elicited, statistics collected, and information gained on the subject for which it exists; and also a distinct financial account of all funds received from whatever source, and of every expenditure for whatever purpose, together with such suggestions as experience and good policy shall dictate for the advancement of the best interests of the State; the said reports to be treated as other State documents are.

SEC. 6. The Board of Agriculture shall have power to appoint a suitable number of persons to act as Marshals, who shall be from twelve o'clock, noon, of the day previous to the opening of the exhibition, until noon of the day after the close of the same, vested with all the powers and prerogatives with which Constables are invested, so far as acts or offences committed within or with reference to or in connection with the exhibition are concerned.

SEC. 7. The Board of Agriculture may, in its discretion, award premiums for the best cultivated farms, orchards, vineyards, gardens, etc.; *provided*, that said Board shall not audit, allow, or pay an amount exceeding one thousand dollars in any one year, for travelling expenses of Visiting Committee in examining said farms, et cetera; *provided*, further, that no persons except practical agriculturists shall be appointed on said committees.

SEC. 8. It shall be optional with any to whom a premium is awarded to receive the article named or its equivalent (as affixed) in coin.

SEC. 9. The State Agriculture Society shall have power, at its first annual meeting after the passage of this Act, to make such alterations in its Constitution as shall make it conform to the provisions of this Act.

SEC. 10. All Acts or provisions in conflict with the provisions of this Act are hereby repealed.

SEC. 11. This Act shall take effect from and after its passage.

AN ACT SUPPLEMENTAL TO AN ACT ENTITLED AN ACT SUPPLEMENTAL TO AN ACT TO INCORPORATE A STATE AGRICULTURAL SOCIETY, APPROVED MAY THIRTEENTH, ONE THOUSAND EIGHT HUNDRED AND FIFTY-FOUR, AND AMENDED MARCH THIRTIETH, ONE THOUSAND EIGHT HUNDRED AND FIFTY-EIGHT, APPROVED MARCH TWELFTH, EIGHTEEN HUNDRED AND SIXTY-THREE.

[Approved April 13th, 1863.]

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. The Board of Directors mentioned in section one of the Act to which this Act is supplemental, shall audit all claims or demands against the State Agricultural Society that have accrued prior to the first day of January, eighteen hundred and sixty-three, and allow such as may be just and proper, and cause their warrants to be drawn on the Treasurer of said society, payable out of the General Fund. Said warrants shall be signed by the President and Secretary of said Board of Directors, and the Treasurer shall pay the same in the order of their

presentation, if there be money in said Fund; but if not, then he shall indorse on the back of the warrant, "presented and not paid for want of funds, this ——— day of ———, Anno Domini, eighteen hundred and sixty ——," and said warrants shall draw interest at the rate of ten per cent per annum from the date of presentation until paid.

Sec. 2. All assets, moneys, and debts, due said society, that accrued prior to the first day of January, eighteen hundred and sixty-three, shall be placed to the credit of the General Fund, for the liquidation of the debts of said society created prior to said first day of January, eighteen hundred and sixty-three, and all moneys received during each fiscal year hereafter shall be placed to the credit of a Fund to be known as a Special Fund for the payment of current expenses, premiums, and awards, for the year in which the same was received, and to liquidate the outstanding indebtedness of said society, as hereinafter provided; and all moneys received from appropriations, donations, or from any other source, and all property acquired, shall be exempt from attachment and execution, for any debt or liability other than those created during that fiscal year.

Sec. 3. The Directors shall each year pay all claims or demands, and premiums awarded, before the last day of December, from said Special Fund; and if any money remain in said Special Fund after the liquidation of all claims and demands of that fiscal year, then the Directors shall advertise, in some newspaper published in Sacramento, that they will receive proposals for the surrendering of the outstanding warrants against the General Fund, naming the time and place where they will be received and opened. Said Board shall accept the bids that will surrender said warrants for the lowest per cent, until all the money remaining in said Fund is expended; and the Board may accept a bid for a part of any warrant, and issue a new warrant for the balance due on such warrant; *provided*, said Directors shall not receive any bid above par, or for any claim or demand that is not presented, allowed, and a warrant drawn, as provided in section one of this Act, within ninety days from the passage of this Act.

Sec. 4. No debt or demand of any kind against said society shall be paid by the Treasurer, or any other person, until it shall have first been audited by the Board of Directors, and on a warrant drawn upon the Treasurer, signed by the President and Secretary; and no premium that may have been awarded by any committee shall be paid until it has been approved by the Board of Directors.

Sec. 5. This Act shall take effect and be in force from and after its passage.

TENTH ANNUAL MEETING.

The time fixed by the Board of Directors for the annual meeting of the society was January twenty-eighth, eighteen hundred and sixty-three, at two o'clock P. M., at which time a few members met at the Pavilion, and adjourned to the twenty-fifth of February, at two o'clock P. M., to await the result of the action of the Legislature in amending the organic law of the society.

On the twenty-fifth of February another meeting was convened, and an adjournment had to the eleventh of March, for the same purpose.

SACRAMENTO, March 11th, 1863.

Agreeably to adjournment, the members of the society convened at the Pavilion at two o'clock P. M.

The President called the meeting to order, and stated its objects to be to hear and act upon the reports of the officers of the society, and to elect officers for the ensuing year. He understood that a new law, essentially changing the government and Constitution of the society, had passed the Legislature, but by some mishap had not received the signature of the Governor, but would soon be signed by him.

A number of communications from different parties were then read, and the report of the Board of Managers presented, and ordered on file.

The Financial Secretary's annual report, and that of the Treasurer, were then presented, and referred to a committee for examination; and as these reports are necessary to keep up the chain of the financial history of the society, they are inserted in this year's transactions, the transactions of eighteen hundred and sixty-two never having been published.

REPORT OF THE FINANCIAL SECRETARY.

CASH RECEIPTS.

Date.	On what Account.	Amount.
June.....20	A. K. Grim, balance.....	$5 25
20	D. O. Mills & Co., amount of loan.....	4,000 00

Date.	On what Account.	Amount.
July.....26	D. O. Mills & Co., amount of loan	$4,000 00
26	A. K. Grim, from Concert Fund	493 00
October.. 4	128 new memberships at Fair of 1862	1,280 00
4	564 renewals	2,820 00
4	10,823 single tickets	5,411 00
4	842 double tickets	842 00
4	1 life membership	40 00
4	Rent of bar at Pavilion	50 00
4	Rent of saloon at Pavilion	40 00
4	Cider privilege, etc	35 00
4	Hat room	25 00
4	210 ball tickets	1,050 00
4	16 carriage tickets	4 75
4	Eoff, on race	30 00
4	Sundry renewals of memberships on account	235 00
4	Proceeds of sale of buggy, etc	499 50
	Total	$20,861 00

STATEMENT OF EXPENDITURES PAID BY ORDERS DRAWN UPON THE TREASURER FROM JUNE 19, 1862, TO JANUARY, 1863, INCLUSIVE.

Date.	On what Account.	Amount.
June.....19	O. C. Wheeler, salary for December, 1861, and January, 1862	$400 00
July.....1	William Turton, repairing Stock Grounds	961 25
1	William Turton, repairing Stock Grounds	800 00
1	John Rider, repairing Stock Grounds	500 00
1	John Rider, repairing Stock Grounds	443 50
1	Visiting Committee, month of June	78 50
1	O. C. Wheeler, for Visiting Committee for July	100 00
19	J. F. Clark, part of salary	17 00
26	Ross & Simms, hay, etc	33 04
26	M. Fitzpatrick, painting	16 95
26	W. F. Knox, balance on lumber	140 05
26	D. W. Earl, balance on grain	54 46
26	R. P. Lee, (Mrs. Nevitt, Assignee)	30 00
26	Democratic Standard, (Talbert, Assignee)	13 15
26	H. R. Covey, horse hire	17 50
26	T. Ogg Shaw, balance on safe	67 50
26	J. J. Murphy, stationery, etc	34 70
26	Fireman's Journal, advertising	35 00
26	J. K. Prior, globes	75 00
26	F. S. Malone, livery	82 35
26	Gas Company, gas	163 75
26	P. Caduc, ice	37 66
26	Samuel McCullough, rent	30 00

Date.	On what Account.	Amount.
July..... 26	Friend & Terry, lumber	$128 10
26	George W. Mowe, (Assignee of Michener)	112 90
26	O. C. Wheeler, salary	99 50
26	N. Larco, (Assignee of W. Yule)	240 00
26	B. F. Hastings, (Assignee of N. A. H. Ball)	75 00
26	Boyd & Davis, (Assignees of N. A. H. Ball)	150 00
26	English & Madden, (Assignees of N. A. H. Ball).	75 00
26	H. S. Crocker & Co	10 95
26	J. J. Murphy	35 40
26	Thomas Day, (Assignee of Hanbridge)	67 80
26	O. C. Wheeler, salary for March	100 00
26	P. Donahue, balance	35 00
26	J. Blewitt	5 25
26	John Emerson	30 00
26	W. H H. Lee	3 25
26	S. D. Smith	$44 50
26	J. B. Owens & Co	3 00
26	A. Badlam, Sr	14 00
26	M. Fitzpatrick	147 00
26	Grimes & Felton	19 75
26	J. M. Jordan	15 00
26	Daily Union	7 37
26	Fuller & Heather	2 25
26	O. C. Wheeler, February, April, and May, salary	300 00
26	D. O. Mills & Co., one half amount note and interest on loan	700 00
26	Fuller & Heather	9 25
	J. J. Murphy	62 80
28	D. O. Mills & Co., one half amount note and interest on loan	700 00
August...11	J. F. Clark, services as Clerk	67 25
13	Visiting Committee, travelling expenses	100 00
14	Daily Union	22 25
14	Daily Bee	16 00
14	A. Steiner	2 50
14	Lull, Ross & Co	8 00
14	M. Fitzpatrick	30 00
14	Friend & Terry	17 49
14	S. F. Dodson	32 25
14	A. Badlam, Sr., printing, etc	185 00
Sept.....14	N. L. Drew, lumber, etc	131 67
14	Treadwell & Co., nails, etc	34 25
14	W. F. Knox, labor	238 00
14	J. M. Boardman, reeving halyards	30 00
29	John Rider, work at Park	169 00
29	Burgess & Goff, work at Pavilion	25 00
30	John Rider, labor (part pay)	40 00
30	B. F. Hastings, account of old debt	650 00
30	O. C. Wheeler, salary	499 50
30	Mr. Lee, watchman at Pavilion	15 00
October ...4	J. Reiner, labor	28 00

Date.	On what Account.	Amount.
October...4	J. E. Merrill, labor	$16 00
4	W. A. Knapp, Clerk at Stock Grounds	25 00
4	J. F. Smith, labor and Clerk	25 00
4	G. W. Wheeler, watchman Stock Grounds	20 00
4	N. B. Kendall, watchman at Pavilion	16 00
4	H. L. Roby, labor at Pavilion	16 00
4	C. Williams, chambermaid at Pavilion	12 50
4	J. Dickerson, labor at Pavilion	16 00
4	A. Haraszthy & Co., purses	612 50
4	Wells, Fargo & Co, silver ware	3,789 94
1	Locke & Lavenson, upholstery	315 00
1	James Anthony & Co., printing, etc	299 12
4	T. B. Hatch, clock	30 00
4	John Burgess, labor	27 50
4	P. Kelly, hauling	25 00
4	California Farmer, advertising	30 00
4	F. McRay, watchman	8 00
4	J. F. Roberts, door keeper	16 00
4	L. Whittier, gate keeper	16 00
4	E. T. Cole, watchman at Pavilion	16 00
4	George Lang, door keeper	16 00
4	John Liness, carpentering	4 00
4	George Wallace, carpentering	10 00
4	Samuel Deal, gate keeper	20 00
4	D. C. Gay, gate keeper	20 00
4	Patrick Long, gate keeper	20 00
4	Gate keeper and usher	20 00
4	— Dellehanty, night watchman	20 00
4	— Kiernan, labor	20 00
4	John Rider, labor	100 00
4	C. Crocker, cotton cloth, etc	50 00
4	J. F. Clark, Clerk	37 50
4	J. Morrill, labor	20 00
4	T. Lowry, labor	12 00
4	A. G. Hoagland, Clerk	20 00
4	E. B. Wheeler, Clerk	16 00
4	S. F. Dodson, labor	84 00
4	George Rowland, postage stamps	37 00
4	O. Cunningham, whitewashing	25 00
4	C. DeBoice, Clerk	20 00
4	James Queen, Clerk	25 00
4	M. Fitzpatrick, painting and plastering	50 00
4	Peter Goff, labor	30 00
4	L. Lotthammer, music	300 00
4	O. C. Wheeler, salary	300 00
4	H. S. Beals, Usher and Assistant	36 00
4	George Rowland, envelops and stamps	14 50
4	N. L. Drew, lumber	422 76
4	Huntington & Hopkins, hardware	90 00
4	Sacramento Gas Company, gas	180 00
4	William Mace, hay and straw	300 00

Date.	On what Account.	Amount.
October...4	John Rider, labor, etc	$745 76
4	P. Carley, labor, etc	12 00
4	J. Tingman, Clerk	20 00
4	T. J. Owens, labor	6 00
4	J. C. Morrow, labor	12 00
4	T. J. McKim, running engine, repairing, etc	181 37
4	W. Sheek, Watchman	16 00
4	D. W. Clark, plumbing, gas-fitting, etc	158 00
4	L. Whittier, carpentering	20 00
4	T. O'Brien, ornamenting	115 00
4	— Van Ryper, labor	21 25
4	G. H. Swinerton, pumps	85 00
4	G. I. N. Monell, Clerk	30 00
4	J. Beran, labor	15 00
4	R. Bradley, labor	8 00
4	M. T. Crowell, door keeper, labor, etc	40 00
4	Sheriff, costs, etc	31 30
4	William M. Harron, disbursements	84 00
4	John Bell, labor	8 00
4	O. C. Wheeler, disbursements	8 00
4	Sheriff, Monell garnisheement	15 00
4	John Dreman, door keeper at Pavilion	20 00
4	F. T. Burke, door keeper at Pavilion	20 00
4	E. B. Ryan, salary and disbursements	304 00
4	O. C. Wheeler, salary	368 00
4	F. W. Hatch, salary	262 00
4	Hyatt & Hubbard, purse for Eoff	87 50
4	Samuel McCullough, old debt and costs	45 00
4	S. T. Dodson, carpenter work	25 00
4	J. Taylor	20 00
4	Discount, Wells, Fargo & Co	2 50
4	O. C. Wheeler in cash and membership	175 00
4	Friend & Terry, membership on old account	50 00
4	W. F. Knox, renewals of membership, old account	55 00
4	T. J. McKim, renewal of membership, on account	5 00
4	M. T. Crowell, renewal of membership, on account	5 00
4	M. R. Rose, renewal of membership, on account	5 00
4	N. Greene Curtis, renewal of membership, on account	5 00
4	A. G. Hoagland, two renewals of membership, on account	10 00
4	S. T. Dodson, one renewal of membership, on account	5 00
4	N. L. Drew & Co., two renewals of membership, on account	10 00
4	J. Rider, one renewal of membership, on account	15 00

Name.	On what Account.	Amount.
October...4	W. Moorhead, one renewal of membership, on account..	$5 00
	Sundries paid during Fair	112 89
	Total	$20,561 00
	Total receipts	$20,861 00
	Total disbursements	20,561 00
	Balance	$300 00
	In hands of Sheriff	$169 00
	In hands of Harman & Hartley	72 00
	In hands of C. H. Grimm	59 00
	Balance	$300 00
February 1	Dues received and paid into Treasury	25 00

STATEMENT OF LIABILITIES—NOTES.

Date.	Name and Purpose.		Amount.
1860.			
April 28...	L. B. Harris, (interest 2½ per cent)		$2,500 00
	Interest due on same to January 28, 1863		2,063 50
Oct. 18.....	N. G. Curtis, (interest 2½ per cent)		2,000 00
	Interest due on same to January 18, 1863		969 86
Oct. 19.....	Ross & Sims, (interest 2 per cent)		500 00
	Interest due on same to January 19, 1863		270 00
Oct. 19.....	N. L. Drew & Co., (interest 2 per cent)		500 00
	Interest due on same to January 19, 1863		270 00
Oct. 19.....	D. W. Earl & Co., (interest 2 per cent)		500 00
	Interest due on same to January 19, 1863		270 00
Oct. 22.....	H. W. Larkin, (interest 2 per cent)		1,000 00
	Interest due on same to January 22, 1863		540 00
Oct. 23.....	Charles Crocker, (interest 2 per cent)		350 00
	Interest due on same to January 23, 1863		189 00
1862.			
May 1.....	B. F. Hastings & Co., (int. 2 per cent)..	$8,150 57	
	Interest due on same to Dec. 1, 1862..	1,172 75	
		$9,323 32	
	Less amount realized sale of safe.. $225		
	Less amount realized rent of Park 300		
	Less amount cash paid..... 650		
	——	1,175 00	8,148 32
	Total amount due on notes and interest.....		$20,070 68

OPEN ACCOUNTS—OUTSTANDING BALANCES OF 1860.

Ross & Sims	$33 05
M. Fitzpatrick	16 95
W. F. Knox	95 05
D. W. Earl & Co	54 46
R. P. Lee, (Mrs. Nevett, Assignee)	30 00
Democratic Standard, (Talbert, Assignee)	13 15
H. R. Covey	17 55
T. Ogg Shaw	67 50
J. J. Murphy	34 70
Fireman's Journal	35 00
J. K. Prior	75 00
F. S. Malone	82 35
Sacramento Gas Company	163 76
P. Caduc	37 66
Friend & Terry	178 22
W. P. Michener, (George Mowe, Assignee)	112 89
G. H. Baker	27 45
N. Larco, (Assignee to William Yule)	240 00
B. F. Hastings & Co., (Assignee, N. A. H. Ball)	75 00
Boyd & Davis, (Assignee, N. A. H. Ball)	150 00
English & Madden, (Assignee, N. A. H. Ball)	75 00
H. S. Crocker & Co	10 95
J. J. Murphy	35 40
Thomas Day, (Assignee, Thomas Hanbridge)	67 80
Friend & Terry	41 34
A. Badlam, Sr	67 00

OUTSTANDING BALANCES ON FILE, MARCH, 1862.

P. Donahue	$35 00
John Emerson	30 00
W. H. H. Lee	3 25
S. D. Smith	44 50
J. B. Owens & Co	3 00
A. Badlam, Sr	14 00
J. J. Murphy	62 80
Fuller & Heather	9 25
M. Fitzpatrick	147 00
Grimes & Felton	19 75
J. F. Jordan	15 00
Daily Union	7 37
Fuller & Heather	2 25
J. Blevolt	5 25
Total	$398 42
Total old liabilities to January, 1863	$22,306 33

OPEN ACCOUNTS — OUTSTANDING ON FILE FROM MARCH, 1862, TO DATE — BALANCES.

J. L. Merrill	$97 00
John Rider	54 39
Dennery & Brother	18 00
Sacramento Gas Company	63 00
J. M. Jordan	15 00
Daily Bee	30 00
William Mace	391 28
William Mace	206 12
L. Lotthammer	240 00
J. Domingos	19 00
L. Stanford	6 00
J. D. Tate	35 00
M. R. Rose	35 25
John Roche	35 50
Union Brass Band	15 00
Phil Caduc	26 25
Williams & Calvin	12 00
D. W. Clark	13 00
James Lansing	20 00
Fuller & Heather	83 50
F. J. Moore	120 45
P. H. Russell	15 88
James Hawks	8 50
Leonard & Seaman	50 25
Leonard & Seaman	125 12
Leonard & Seaman	24 80
James Anthony & Company	13 50
James Anthony & Company	58 75
E. M. Skaggs	94 00
Paine & Brother	12 00
S. Dodge	19 50
C. Crocker	.. ..
John Rider	.....
Hyatt & Hubbard	.....
S. Tryon	81 00
M. Fitzpatrick	120 00
A. Badlam, Sr	17 50
Joseph Shaw	28 82
Joseph Shaw	200 00
H. M. Bernard	15 50
M. Devine	13 50
Mrs. Ames	62 50
J. L. Merrill	.....
A. Lamott	24 50
A. G. Hoagland	95 00
S. B. Leavitt	68 25
Jones & Marzen	8 75
Richart & Stevens	6 00
Locke & Lavenson	105 43
Owen Cunningham	25 00

Huntington & Hopkins	$24 44
Sacramento Gas Company	.....
D. W. Clark	52 90
T. O'Brien	35 00
G. H. Swinerton	30 50
N. L. Drew	724 62
B. F. Hastings	.....
Total	$26,473 58

PROPERTY AND CASH ASSETS—JANUARY, 1863.

State appropriation, 1862, November	$5,000 00
Silver ware and books	778 97
Fountain	1,500 00
One large tent	400 00
Agricultural Fund in County Treasury	937 09
Balance due from D. O. Mills & Co. on State appropriations	1,200 00
Marble statue	150 00
Deficiency to balance	16,507 61
Total	$26,473 58

RECEIPTS FROM MAY 15, 1862, TO 1863.

From A. K. Grim, former Treasurer	$5 25
D. O. Mills & Co., loans	8,000 00
A. K. Grim, on account of Pavilion	493 00
State Fair of 1862, total receipts	11,863 25
Sale of buggy, etc	499 50
Total	$20,861 00

DISBURSEMENTS FROM MAY 15, 1862, TO 1863.

Paid O. C. Wheeler, Corresponding Secretary	$2,242 00
Rider & Turton, repairs, etc., stock grounds	3,759 51
Expenses Visiting Committee	278 00
Fifty per cent on old accounts of 1860	2,125 08
Fifty per cent on D. O. Mills & Co.'s account of 1860	1,400 00
For lumber	554 43
For printing, etc	630 12
For purses, etc	700 00
B. F. Hastings, on old account of 1860	650 00
Running engine, etc	181 30
Carpentering, etc	413 25

Wells, Fargo & Co., for silverware	3,792 44
Music	300 00
For Clerks	315 75
For hay and straw	300 00
For gas	180 00
For halyards, etc	30 00
For upholstery	315 00
For stationery	62 00
For ornamenting Pavilion	115 00
For plumbing, etc	158 00
For plastering wall etc.	80 00
For pumps	85 00
For Sheriff's costs	46 30
For disbursements (Harron)	84 00
For part salaries of Financial and Recording Secretaries	566 00
S. McCullough's old debt and costs	45 00
For sundries, (labor, material, etc.)	869 41
For renewals of memberships, etc., on account	175 00
Cash in hands of Sheriff	160 00
Cash in hands of Harmon & Hartley	72 00
Cash in hands of C. H. Grimm	59 00
Paid sundries, (Hatch, $70)	108 41
Total	$20,861 00

Respectfully, etc.,

E. B. RYAN, Recording Secretary.

REPORT OF TREASURER.

AMOUNT RECEIVED FROM ALL SOURCES.

Date.	From whom.	Amount.
1862.		
June.....16	From A. K. Grim, ex-Treasurer	$5 25
June.....17	From D. O. Mills & Co	4,000 00
July 29	From D. O. Mills & Co	4,000 00
Sept. 5	From A. K. Grim	493 00
Sept. 20	From E. B. Ryan	749 00
Oct. 1	From E. B. Ryan	105 00
1863.		
Jan. 1	From County Auditor	937 16
Jan. 1	From E. B. Ryan	11,069 86
Feb. 1	From E. B. Ryan	25 00
	Total	$21,384 27
	To amount expended as per vouchers herewith transmitted	21,359 29
	Balance in Treasury	$25 00

F. W. HATCH, Treas. S. A. S.

SACRAMENTO, March 11, 1863.

After some discussion as to whether an election of officers should be held under the law as it then existed, or under the law just passed and in the hands of the Governor, the meeting adjourned until to-morrow at half past three o'clock P. M.

SACRAMENTO, March 12th, 1863—3:30, P. M.

In the absence of A. Haraszthy, the President, (who had been called away,) O. C. Wheeler, Secretary, called the meeting to order, and stated that Isaac Davis, the First Vice President, would preside.

Mr. Davis took the Chair and announced the meeting in session and ready for business.

William H. Parks, Senator from Sutter, having been appointed a committee, yesterday, to procure, if necessary, the passage of a law which would enable the Society to proceed with the election, reported that he had secured the passage of such a bill, and now presented a copy of the same. (See page 2, Section 2, amended.)

Mr. Parks said that upon examining the law just passed and approved this day, he found that it only provided for the election of delegates by the district and county societies to attend the annual meetings of the

State Society which should be held in the month of January of each year, and did not therefore authorize the election of delegates by those societies to represent them at this annual meeting, convened as it was in March; hence he had made a provision in the amendatory Act now presented authorizing the State Society, by a vote of the members present at this meeting, to permit any person present who desired to represent any of the district or county societies to do so, whether legally elected a delegate from such society or not.

Upon motion of Wilson Flint, the meeting then invited all persons who had been elected delegates to this Convention from other agricultural societies, to take their seats as such delegates; and in the absence of such delegates so elected, that the members of the Legislature present from such districts be elected and invited to represent such societies at this meeting.

Under this invitation and election, G. N. Swezy, (President of the Northern District Society), from Yuba County; Hon. William H. Parks, of Sutter; Hon. Thomas Shannon, of Plumas; and Hon. James Collins, of Nevada, represented that society.

Hon. G. R. Warren, of Stockton; Hon. S. Meyers, Hon. D. J. Staples, and J. Sarles, Esq., of San Joaquin, represented the San Joaquin Valley District Society.

Hon. S. W. Sanderson, and Hon. O. Harvey, of El Dorado, represented the El Dorado County Society.

Dr. J. R. Crandall, J. R. Nickerson, Esq., and S. B. Wyman, represented the Placer County Society.

The Bay District Society was represented by A. A. Cohn, of Alameda, and M. D. Boruck, of San Francisco.

The Plumas County Society was represented by Hon. T. B. Shannon, and Hon. M. D. Howell, of Plumas.

Being thus fully organized, the next business in order was the election of a President and nine Directors for the current year.

J. R. Moore nominated Isaac Davis, of Yolo, for President for the ensuing year. Having known that gentleman for many years, he could state he was always mainly engaged in agriculture, and had been deeply interested in that subject during his whole life. He would attend to the duties of the office faithfully during the entire year.

The Presiding Officer (Isaac Davis) said he would like to place in nomination J. R. Crandall, of Placer County.

D. H. Staples said he had heard several gentlemen speak of J. G. Doll, of Tehama, in connection with the Presidency of the Society. As there might be some who would like to vote for him, he placed that gentleman's name in nomination.

The Society proceeded to ballot. Whole number of votes cast, one hundred and eight. Necessary to a choice, fifty-five. Isaac Davis received sixty-three.

Mr. Davis, having received a majority of all the votes, was declared duly elected.

Mr. Davis made the following remarks:

"Gentlemen:—I thank you for the honor you have conferred upon me. It is an honorable position, to be sure, to be elected President of this Society; at the same time, I assure you it was very unexpected to me. I did not desire the position, but as you have decided so by your vote, I suppose I shall have to submit and endeavor to sustain the office. Therefore, I again thank you."

A. D. Rightmire moved that the election be declared unanimous, which was carried unanimously.

The President said he presumed the next thing in order would be the election of nine Directors.

A. K. Grim moved that a committee of five be appointed by the Chair to name nine candidates for the consideration of the Convention.

J. F. Montgomery opposed the motion as bad policy, and hoped gentlemen from the different sections of the State, who were acquainted with all the parties and the interests to be represented, would nominate the candidates themselves. Thus, every part of the State would be treated alike, and every possibility precluded of the matter being fixed up by individuals.

M. D. Boruck hoped also that the motion would not prevail. He did not like Star Chamber doings, either in social, political, or beneficial matters. The duty of selecting candidates was not so onerous but that they could duly do it in Committee of the Whole as well as a select body could do it in an anteroom. He, for one, would not vote to concur in the report.

Mr. Staples said he had had some little experience in connection with this Society—his day in Court—and believed it necessary to have at least five of the Directors within reach of the Capital. He threw out this hint in view of the trials and labors he knew to be requisite to make the Society a success. For his part, he should vote against any man, though selected by the committee, who, he thought, might not serve the best interests of the Society.

Mr. Boruck said they could make the selections as quick as any Select Committee, and the matter was important. If it were left to a committee, the Convention must take a recess, or adjourn over, for they could not hastily present them a ticket that they would be willing to vote for.

J. H. Culver moved that five of the Directors be elected from the vicinity of Sacramento.

Mr. Curtis suggested that the representatives of the several counties simply put down the names of those they preferred to have elected, and submit their preference to a committee. He insisted on the motion that five Directors be within convenient distance of the Capital.

C. H. Grimm thought four would be sufficient. His idea was that the different parts of the State should be as widely represented as possible, and the Society be divested of local influences. The President being so near Sacramento, four in addition to him would generally secure a quorum.

J. R. Moore moved to amend the motion of Mr. Grimm, that the Convention proceed to elect nine Directors.

J. S. Hittell believed the former motion to be the only one regularly before the House, and it should be adopted, for all knew that in a large assemblage, where many persons were collected, with different views, there was apt to be great confusion. Their object was to select men who would work. Without considering the matter carefully, no such body of Directors would be likely to be selected. Persons who had suggestions to make might go to the committee. In Convention they could not speak so freely of the character of individuals. If he had objections to any one, he did not wish it to go into the newspapers.

After further discussion:

David Bush moved that the Convention now proceed to nominate five members outside of Sacramento and vicinity.

C. H. Grimm opposed the motion, because he did not wish to discriminate between outside and inside of Sacramento.

D. J. Staples, as one who had represented this society outside of Sacramento, said he had no fears about the effect. It was well known to every man in the State, conversant with the State Agricultural Society, that Sacramentans would look out for their own interest. It would remain prominent that Sacramento specially desired this society to be a success, and therefore demanded a quorum within reach at the monthly meetings. The interests of the society absolutely required it; and he was willing they should have it. He lived thirty-five miles away, and during the whole year of his service as a Director, he attended the monthly meetings regularly, at great inconvenience to himself, and found that it generally required his presence to make a quorum.

Thomas Hansbrow said the greatest trouble the society had hitherto encountered was the difficulty in securing a monthly quorum. Whoever might be selected, he hoped it would be only such as took an active interest in agriculture—at least five of whom resided close at hand.

W. H. Parks said there was nothing improper in having a quorum residing near headquarters. Three of the Directors of the Insane Asylum were obliged by law to live in San Joaquin; three of the State Reform School in Yuba; and so in other instances. It was right and proper; it would be utterly impossible for a resident of Siskiyou to come down here monthly.

Samuel Meyers thought there was good practical sense in the proposition to select four Directors outside of Sacramento; for if the whole nine should happen to be chosen from Sacramento, jealousy would be created; and if all were elected beyond the reach of Sacramento, the interests of the Society would be neglected. It was no more than wise to see, first, whether candidates were outside or inside before proceeding to elect.

The Convention decided to proceed to the election of four Directors outside of Sacramento. The result was: W. H. Parks of Sutter, E. S. Holden of San Joaquin, J. A. Banks of San Francisco, and R. J Walsh of Colusa—who were duly declared elected as Directors for the ensuing year.

On motion, the President appointed Messrs. W. H. Parks, Wilson Flint, William Shattuck, N. L. Drew, and A. K. Grim a committee to retire and select five candidates from the vicinity of Sacramento.

After a pause of ten minutes, Mr. Parks reported the names of J. C. Davis of Yolo, C. H. Grimm of Sacramento, C. J. Leonard of Sacramento, C. W. Lightner of Sacramento, and N. L. Drew of Sacramento—making four from Sacramento and one from Yolo.

On motion of Mr. Crocker, the report was accepted.

J. A. Duffy nominated, in addition, M. Bryte of Yolo.

H. T. Holmes placed in nomination H. M. Bernard.

The Convention proceeded to ballot, with the following result:

Names.	Votes.
Davis	70
Leonard	48
Lightner	54
Drew	47
Grimm	69
Bryte	40
Bernard	37

Messrs. Davis, Leonard, Lightner, Drew, and Grimm, having received, each of them, a majority of all the votes cast, were declared elected Directors for the ensuing year*.

The committee appointed to examine the books, vouchers, and accounts of the Secretary and Treasurer—consisting of J. R. Crandall, C. J. Leonard, Wilson Flint, and A. K. Grim—reported that the duty assigned them had been duly performed, and the vouchers, etc., found correct.

Mr. Parks inquired if there was any further business to be attended to before adjourning sine die.

The President said none that he knew of. He suggested, however, that the Directors meet to-morrow (Friday) morning at ten o'clock.

On motion, at six o'clock and fifteen minutes the Convention adjourned.

*The discrepancy between the Directors elected at the annual meeting and those appearing on our first page, has been caused by resignations and filling vacancies by the Board.

OFFICERS FOR 1864.

PRESIDENT.

CHARLES F. REED.....Yolo.

DIRECTORS.

Directors whose terms expire in 1865.

R. J. WALSH.....Colusa.
A. G. RICHARDSON.....Sacramento.
WILLIAM P. COLEMAN.....Sacramento.

Directors whose terms expire in 1866.

C. T. WHEELER.....Sacramento.
JOHN H. CARROLL.....Sacramento.
EDGAR MILLS.....Sacramento.

Directors whose terms expire in 1867.

B. R. CROCKER.....Sacramento.
T. L. CHAMBERLAIN.....Placer.
J. J. OWEN.....Santa Clara.

TREASURER.

E. B. RYAN.....Sacramento.

SECRETARY.

I. N. HOAG.....Yolo.

ELEVENTH ANNUAL MEETING.

SACRAMENTO, January 29th, 1864.

In accordance with previous notice, a meeting of the California State Agricultural Society was held this day, at twelve o'clock M., at the Pavilion, in Sacramento.

A quorum not being present at the hour assigned, on motion, the meeting adjourned to three o'clock P. M.

At the meeting in the afternoon, the Chair was taken by the President of the Society, (Isaac Davis,) who called to order, and remarked that the law regulating the acts and duties of the society required its annual meeting to be held in January. In accordance with that requirement, they had convened on that occasion to transact the usual business.

He would suggest that the reading of the reports of the Board of Directors and of the Financial Secretary would then be in order.

The Secretary then read the following:

REPORT OF THE BOARD OF DIRECTORS.

GENTLEMEN:—When the present Board were elected, on the twelfth of March last, and assumed the duties of their offices, they will in candor confess that the affairs of the society were not in a very satisfactory condition, and its prospects for the future were anything but flattering. The condition of its finances first engaged their attention. The debt of the society, as shown by the Financial Secretary for eighteen hundred and sixty-two, was, on the first mentioned date, twenty-six thousand four hundred and twenty-three dollars and fifty-eight cents. The assets of the society, set down by the same officer, were a little less than ten thousand dollars, but nearly all were found to be of such a character as were required by the society in the prosecution of the objects for which it was created, and hence unavailable for the immediate cancelling of any portion of the debt.

A considerable portion of the society's property had been pledged to secure the payment of money borrowed at a high rate of interest, and the balance of convertible property had been attached and was in the hands of the Sheriff, and its sale postponed only by the intervention of a bond for the security of the debt.

In looking over the whole matter, the Board, acting on the principle

that a desperate case demands a desperate remedy, applied to the Legislature, then in session, for a law authorizing the funding of the entire indebtedness of the society, the issuance of warrants or bonds, and the creation of a fund for the final redemption of the same. The Legislature granted their request, and the creditors came forward, with few exceptions, surrendered their evidences of debt in exchange for warrants at par on the Redemption or General Fund of the Society, bearing interest at ten per cent per annum. Thus the society was placed beyond the reach of immediate trouble, and at the same time was relieved of a ruinous accumulation of interest against it, and was enabled to prepare for and hold its Annual Fair, the financial and general beneficial results of which are set forth in detail in our report to the Governor, which has been ordered printed by the Legislature, and will soon be published for distribution among our own members, and to other kindred societies both in our own and other States, to which we would respectfully refer you for information; and would ask your attention for a few minutes to some suggestions in regard to the management and objects of the society, which observation and experience have taught us are worthy of consideration.

We deem it proper, however, here to remark that the debt of the society has been, under the management of the present Board, reduced over seven thousand dollars, leaving the present indebtedness of the society, including interest to date, nineteen thousand one hundred and eighty-two dollars and seventy-four cents, and there is no incumbrance of any kind on any of its property, and it has a monthly income of one hundred dollars under a contract which has nearly three years yet to run. We are also able to state to you that a plan has been devised, and we have confident hopes of its success, by which the entire debt of the society will be paid during the next twelve months.

The exhibition at the last Annual Fair, though not as full and abundant in some departments as in some former years, yet it proved that the State is making more rapid and substantial progress in the development of wealth and the production of new and useful articles of industry than at any previous time in her history. It is with heartfelt pride and satisfaction, therefore, that we congratulate you upon your steady and uninterrupted advancement and improvement in general—agriculture, mining, manufactures, arts, and commerce.

The premium list offered for our last Fair, we are well aware, was imperfect and defective in many respects, and the premiums offered in many cases were insufficient to induce a lively and healthy competition among exhibitors; but it must be remembered that the present Board did not assume the management of the society and become fully organized until the first of April, some time after the list should have been published, and that then the prospects of a Fair were such as not to warrant a very large list of premiums, lest they should be unable to pay those offered.

We would here suggest the propriety of increasing the premiums for many of the agricultural productions, particularly as to those the successful culture of which in our State is yet unsettled, for the wealth and independence of a State depends more upon the variety of the productions than upon the quantity of any one article, however excellent or valuable that may be.

The list of premiums for manufactured articles may well be extended in number, and increased in value—for however rich a State may be in the production of the raw material, yet when put to the test she will

realize her poverty, unless she is able to manufacture those materials into the various necessary articles of life.

No State ever possessed greater or more available facilities for the support of a prosperous manufacturing community than California. Her mountains are covered with perpetual snow, feeding thousands of rivers and streams, which, as they wind their varied descending courses through the foot-hills to the plains, invite the manufacturer to successful enterprise, and point the State to the neglected means of her future greatness.

We would also suggest the propriety and justness of offering suitable premiums for useful and ingenious inventions of every description. The wisdom of a Government is in no other way so surely indicated as in stimulating and encouraging the genius and inventive powers of its citizens. Let the patent of the department be the evidence of an invention and of merit, and require that the article for the invention or improvement of which a premium is claimed, be exhibited at the Fair, and, so far as possible, subjected to the tests of actual experiments. In this manner all the valuable inventions and inventive genius would be collected and associated together, and the opportunity for observation and comparison thus afforded at a single Fair would very likely be followed by results worth millions of dollars to the State in two or three succeeding years. No class of machinery presents so inviting a field for the profitable exercise of inventive genius as that devoted to quartz mining and saving of the precious metals, and no State in the world would be more benefited by improvements in this department than California.

Some means should be adopted to engage a more lively interest and secure a more active support and co-operation of our votaries of the fine arts at our annual exhibitions—the professional artists as well as the amateurs.

Excellence in painting, drawing, sculpture, and music, are indicative of a high state of civilization, and should always accompany and be intermingled with the exhibitions of those generally considered more useful and substantial arts, sciences, and invention. The sudden acquirement of wealth, by persons in this State and the surrounding States and Territories, is creating a demand for rare paintings, beautiful specimens of sculpture, and elegant and costly instruments of music, heretofore unknown in ancient or modern times, or in any other country. Hence, the talents of our artists should be brought out, and their relative merits should be known, and what medium so appropriate or place so convenient as our State institution and its annual exhibition for the accomplishment of this desirable object? We would commend this subject to the careful consideration of our successors while preparing for the coming exhibition.

It has been customary with former Boards of Directors to spend hundreds of dollars in decorating the Hall preparatory to the Fair. In view of this fact, we deem it proper to remark that an equal sum expended in premiums for floral designs and the exhibition of pot plants, to be placed in different parts of the room, would not only make a much more natural and pleasing decoration, but, being a part of the exhibition itself, would at the same time be encouraging our professional florists, cultivating among our people a general taste and love for flowers—thus tending by approbation and example to beautify and adorn our towns and cities, and render inviting every homestead in the land.

Our National Congress, by an Act approved May fifteenth, eighteen hundred and sixty-two, established, as a distinct branch of the Govern-

ment, a "Department of Agriculture," the management of which they placed in the hands of a Commissioner of Agriculture, whose general duties, as defined by the law, are to acqure and diffuse among the people of the United States useful information on subjects connected with agriculture, in the most general and comprehensive sense of that word, to make and record practical and scientific experiments, to collect agricultural statistics, and annually to report his transactions to the President and to Congress. Our own Legislature at its last session, following the worthy example, by law established the "State Board of Agriculture," and made it a part of their duties to use all suitable means to collect and diffuse all classes of information calculated to aid in the development of the agricultural, mineral, mechanical, and manufacturing resources of the State, and report biennially to the Governor an account of its transactions—the facts elicited, statistics collected, and information gained on the subjects for which it exists.

The present Board, through their Secretary, have labored assiduously for the accomplishment of these objects; but experience has taught them that the means at their disposal are inadequate to the demand made upon them, and the law should be so changed as to supply these means. By the present and very imperfect law, the District and County Assessors are required to report annually agricultural, mineral, and manufacturing statistics to the Surveyor-General, and it is made the duty of that officer to lay this information before the Governor. This law was passed long before the organization of this Department, and it is respectfully suggested that now the proper medium for such information is the State Board of Agriculture, and such, we believe, was the *intention* of the Legislature, but, from oversight, they neglected to provide the machinery by which to accomplish the end. The Board are charged by law with the performance of very important duties; then why not place in their hands the means for the successful performance of these duties? The entire want of statistical reports from many counties, and the imperfect and unreliable character of those from many others, as shown by the report of the Surveyor-General, (and we do not attribute any of these deficiencies to that officer,) proves the necessity of a radical change in the law.

Let the Legislature require, by enactment, the District and County Assessors to make, under oath, from actual canvass, and not from guesswork or idle estimation, their agricultural and other statistical reports to this Department, and prohibit the Supervisors of the several counties from auditing or paying the salaries of the Assessors until their duties shall have been carefully and faithfully performed, and the Assessor shall have produced the receipt of the Secretary of this Board to that effect.

Under the operation of a law such as is above indicated, we submit that the State of California would have the credit of establishing a system for the collection and diffusion of important statistical information unequalled by any other State in the Union, and she would then justly deserve the high compliment lately paid her by the Commissioner of Agriculture, when, in his report to Congress, he says: "California exhibits a juster regard for statistical information than any other State." It is also submitted that the adoption of such a system would possess the advantage of supplying the State Government with an annual correct and complete census at a mere nominal extra expense, for the additional time required by the Assessor, while taking the assessment, to perform

these additional duties, would be but very little compared with the advantages gained.

We commend the importance of this subject to the consideration of this Convention, that the result of its deliberations may be laid before the present Legislature.

We feel called upon here to remind the members of the society, and all others interested in the general welfare of the State, that each individual has it in his power to contribute much to the general fund of information, and much to the prosperity of the State, by taking close and careful note of their several experiences, making memoranda of all useful and interesting facts and discoveries, preserving specimens of natural curiosities, and forwarding the same to the Secretary of this Board. As the gold from our innumerable and exhaustless mines, in every conceivable form and degree of fineness, is forwarded to the Mint, there to be assayed, coined, and stamped with a legal value, and then sent forth, in times of quiet and peace, to supply the people with the means with which to prosecute agriculture, to accomplish manufactures, and to cover the high seas with the white sails of their merchant ships—and in times of trouble to furnish the Government with the sinews of war—so this information, these facts and discoveries, concentrated here, compared with each other, tested by science, reduced to system, and stamped with their real value, will go forth, in the former case, to give intelligent direction to agricultural pursuits, scientific skill to manufacturing effort, successful and profitable termination to mercantile voyages, and in the latter case, superior and triumphal success in the application of the sinews of war.

At the beginning of the present year, the Board inaugurated the plan of correspondence, by issuing circulars to individuals in every county in the State, from whom reliable information may be obtained, touching all the subjects for the encouragement of which the society was established, and when any information of general interest is thus obtained, they intend issuing reports of such information. And if individuals will manifest the same interest and liberality in furnishing such information as the press has in furnishing the society with journals and papers, and opening those journals and papers as a medium of communication with the people in every part of the State, we may well anticipate satisfactory results from our efforts in this direction.

One of the greatest difficulties in preparing for and conducting an Annual Fair satisfactorily is found in the selection of competent judges to pass impartially upon the multiplicity of articles exhibited. If there could be any mode devised by which exhibitors might select these judges, the Board would gladly surrender this duty into their hands. It is not so difficult a tax to name men in the State competent and impartial to fill every committee, but the difficulty is in inducing such men to be present at the time and place the duty is to be performed.

To solve these difficulties the following plan is suggested as at least worthy of trial: Suppose each committee to be composed of three persons; let the Board name nine for each, and publish their names and the department in which they are to serve, with the premium list. Let all the persons thus named who meet at the Fair, say on the first day, cast lots to determine who shall serve. This mode will be likely to secure the attendance of the requisite number, and will relieve all parties of the charge of premeditated partiality.

Perhaps an equal or greater difficulty than the above is found in the selfishness of exhibitors. Some persons seem to bring their articles to the Fair with a determination not to be satisfied unless they secure the first premium. Others are like the criminal before the Court, their only fear being that justice will be done them.

Then again, some who are engaged in stock raising and the improvement of the blood of horses are in favor of ignoring all other departments, and converting the Annual Fairs into horse shows exclusively. Others, engaged in manufacturing and mechanical pursuits, declare with equal earnestness that the State Society can never prosper until it puts down what they call horsemania, and gives more prominence to the departments which they represent. Then comes in the agriculturist and the miner, representing each separate branch of those industrial pursuits. Each protesting stoutly against the partiality exercised by the Board, and claims equal justice at the hands of the Society, and threatens an appeal to the Legislature if their demand, as they construe it, is not granted. And so on to the end of the list. Then, again, particular localities become impressed with the idea that the Society is of no account because it does not hold its Fairs at their doors, and straightway set themselves to work to counteract and defeat all its efforts for the accomplisment of good, and try to induce every body else to do the same.

The particular answer to those classes above named is, that it is of as much benefit to the State that the mechanics should be encouraged, that the iron horse may be improved in beauty and strength, as that the Arabian steed should be improved in blood and bottom. And the agricultural and mineral departments should be encouraged and fostered, that both the horses may be well fed and furnished with profitable employment.

But a more general and unanswerable reply to all such complaints is, that the Legislature created and makes annual donations to this department for a grander and nobler purpose than to administer to the special interests of any particular individual, or encourage exclusively or principally any special calling or branch of industry, or to hold its Fairs at any particular place for the benefit exclusively of that locality. The money appropriated by the State for premiums is drawn from every citizen and every branch of industry alike, and the department has not the authority, if it had the inclination, to prefer one class of citizens or one branch of industry to another. He would therefore appeal to all who have the future welfare of the State at heart, to lay aside all this selfishness, to forget all the heart-burnings of the past, and resolve that for the future they will be governed by higher and nobler motives, and put their shoulders to the wheel and shove forward the car of improvement.

There are many other subjects connected with the society we desired to discuss, but space will not allow. We do, however, deem it of great importance that this Convention should, by unanimous action, reduce the price of membership to the society from ten to five dollars. It will increase the number of members, extend the society's sphere of usefulness, and, we believe, put more money in the Treasury.

The General Government having donated to this State, upon certain conditions, one hundred and fifty thousand acres of land for the establishment of an Agricultural College, our Legislature of last winter provided for the sale of the same. There is a proposition before the present Legislature to accept the conditions and notify the General Government of the fact.

There is also a bill introduced for the establishment and management of this College. The matter is one of so much importance that it should be well canvassed and discussed before any definite action should be taken, for the first step in the wrong direction, in a matter of such magnitude, will not very easily be retraced, and the effect of such a step can never be effaced.

It therefore behooves the farmers of this State to look well to the subject, and see that an institution designed for the education of those who are to fill their places should be so organized as to answer well the object designed. There is no hurry in this matter. Let the foundation be laid broad and firm before you proceed to erect the structure, and let the base of that foundation be correct and liberal principle. Then will the effect of that institution outlive the granite of which the outward structure is composed, and be a blessing to those who are to come after us.

All of which is respectfully submitted by the Board.

ISAAC DAVIS, President.

I. N. Hoag, Secretary.

The President said, before taking any action on the report just read, he would suggest that the meeting now listen to the report of the Treasurer and the financial report of the Secretary. These were then read by the Secretary, and may be seen on pages five to fifteen, to January first, eighteen hundred and sixty-four.

In addition to what appears there, he read the following supplemental reports:

CASH ACCOUNT FROM JANUARY 1ST, 1864, TO JANUARY 26TH, 1864.

Cash on hand January 1st, 1864		$71 22
Cash received for pair of goblets		50 00
Cash received for renewals		15 00
Cash received for diploma frame		3 00
CONTRA.		
Cash used to purchase warrants on General Fund	$71 22	
Cash on hand	68 50	
	$139 72	$139 72

FUNDED DEBT.

Amount indebtedness January 1st, 1864, exclusive of interest	$19,292 56
Approximate interest to date	102 53
	$19,395 09
Deduct amount of warrants purchased with $71 22, and surrendered	212 35
Present indebtedness	$19,182 74

William Daniels of Santa Clara moved that a committee of three be appointed by the President to examine the communication of the Board of Directors, also a like committee the reports of the Treasurer and Financial Secretary, and to report to the meeting at seven o'clock that evening.

The motion was adopted, and the President appointed William Daniels of Santa Clara, S. Meyers of San Joaquin, and M. Boulware of Sutter, as the committee upon the report of the Board of Directors; and A. Badlam, Jr., and A. P. Smith of Sacramento, and J. S. Curtis of Yolo, the committee upon the financial reports.

ELECTION OF OFFICERS.

A. Aitken of Sacramento moved that the society proceed to the election of officers.

Carried.

Mr. Boulware suggested that there would undoubtedly be a more full meeting in the evening at seven o'clock, and he moved to reconsider the motion in reference to the election of officers at that time.

The motion prevailed, and a reconsideration of the action of the meeting in this connection was effected.

The Secretary announced that a communication had been received from Judge Daniels of Santa Clara, on the subject of "Mildew," and, on motion, it was read to the meeting, and ordered to be placed on file.

On motion of S. Meyers, the meeting then adjourned to seven o'clock P. M.

EVENING SESSION.

The meeting was called to order at seven o'clock and thirty minutes P. M., by Isaac Davis, the President.

The Secretary read the report of the committee on the general report of the State Board of Agriculture to the annual Convention, recommending that the report be adopted.

The President put the question on receiving and adopting the report; and it was adopted.

Messrs. J. S. Curtis and Alex. Badlam reported that they had examined the financial report of the Board, and having compared the Treasurer's books and vouchers with the Secretary's accounts, found them correct.

Alex. Badlam of Sacramento said they had examined the figures only, without going over the vouchers.

The report was received and adopted.

The President announced that the next business would be the election of a President, and appointed as Tellers J. McClatchy of Sacramento and James Haworth of Yuba.

Marcus D. Boruck of San Francisco nominated as President James Haworth of Yuba.

Samuel Meyers of San Joaquin was also nominated.

M. Boulware of Sutter inquired if the candidates would accept. If so, he had no doubt that Haworth could be elected by acclamation.

James Haworth said he must most respectfully decline, because he

could not attend to the duties of the position, not being a resident of this county.

Samuel Meyers also declined, because it was utterly impossible for him to serve.

Charles F. Reed of Yolo was placed in nomination.

S. Meyers of San Joaquin moved to elect Reed by acclamation. Decided out of order under the by-laws, requiring elections to be by ballot.

N. L. Drew of Sacramento moved that the Secretary be authorized to cast the vote of the society. Ruled out of order for the same reason.

The meeting proceeded to ballot for President, and Charles F. Reed of Yolo was elected, having received all the votes except two for Haworth, one for Badlam, one for Meyers, and one for Davis.

Charles F. Reed was declared duly elected. He returned thanks for the compliment, and Messrs. Haworth and McClatchy were appointed to conduct him to the Chair.

The Convention next proceeded to elect three Directors.

Samuel Myers of San Joaquin nominated J. E. Perley of San Joaquin.

A. Runyon of Sacramento was nominated.

N. L. Drew nominated Judge William Daniels of Santa Clara.

Judge Daniels said he would be glad to have his name withdrawn, as it would be very inconvenient for him to attend to the duties of the position.

Perley declined for similar reasons, and said he was afraid it would clog the youthful energies of the Society to put in an old man like him alongside of the zealous and vigorous younger men.

Daniels nominated L. H. Bascom of Santa Clara, but subsequently withdrew his name.

N. L. Drew of Sacramento nominated J. H. Culver of Sacramento.

M. Boulware nominated Thomas Lee Chamberlain of Placer.

Drew of Sacramento moved to proceed to ballot for one Director.

Boulware of Sutter moved to ballot first for one Director from Sacramento.

Sylvester Tryon of Sacramento was nominated.

The Convention decided to proceed to ballot for all the Directors at once.

Drew of Sacramento nominated J. J. Owen of Santa Clara.

The Convention balloted, and made choice of T. L. Chamberlain of Placer, J. H. Culver of Sacramento, and J. J. Owen of Santa Clara.

M. D. Boruck of San Francisco moved to adjourn till to-morrow morning, on account of a military company (the Sharpshooters) drilling in a remote corner of the hall.

The motion was not seconded; but, on motion of I. N. Hoag, a committee was appointed to wait on the Captain of the company, which committee promptly reported that the company would very cheerfully suspend their drill for the evening.

I. N. Hoag, the Secretary, moved to amend the third article of the Constitution, so as to reduce the cost of membership from ten to five dollars, and asked unanimous consent to adopt the amendment at once, without the necessity of lying over one year, as provided by the by-laws. He was satisfied that this amendment would enable the Society to do more good, and make more money, than if the price remained as now fixed.

M. Boulware of Sutter and N. L. Drew of Sacramento favored the amendment, and it was unanimously adopted.

J. McClatchy of Sacramento offered the following, which was unanimously adopted :

Resolved, That the thanks of this Society are hereby tendered to Isaac Davis, the retiring President, for the active, faithful, and earnest manner in which he performed the onerous duties belonging to his office.

Secretary Hoag said the press of the State was furnishing the society with their papers free, and moved a vote of thanks to the publishers.

Adopted unanimously.

N. L. Drew of Sacramento moved a vote of thanks to Judge Daniels, for his Essay on Mildew.

Adopted unanimously.

Having concluded its business, at half-past eight o'clock the Convention adjourned sine die.

ANNUAL REPORT

OF THE

TREASURER OF STATE AGRICULTURAL SOCIETY,

FOR THE YEAR ENDING JANUARY 1st, 1864.

By total amount received to date		$18,119 86
Disbursements	$18,048 64	
Cash on hand to balance	71 22	
	$18,119 86	$18,119 86

SILVER WARE ACCOUNT.

Total amount Silver Ware on hand January 1st, A. D. 1864	$874 25

The above is respectfully submitted.

E. B. RYAN,
Treasurer of State Agricultural Society.

SECRETARY'S ANNUAL REPORT

OF THE FINANCIAL TRANSACTIONS OF THE STATE BOARD OF AGRICULTURE, FROM APRIL 1ST, 1863, TO JANUARY 1ST, 1864.

CASH RECEIPTS.	
From former Treasurer	$178 00
From County Agricultural Fund	144 21
From N. L. Drew and others, (borrowed)	150 00
For Rent, Cider, Wine, and Bar privileges	170 00
For Hat, Barber, and Refreshment Rooms	56 00
For Entrance Fees to Races	452 00
For Hack Tickets	20 00
For Duplicate Diplomas	9 00
For Annual Dues, and Ladies' Memberships	2,420 00
For New Memberships	2,030 00
For Single Tickets to Hall, Park, and Fair	9,226 27
For Exchange of Premiums	55 09
For one copy Encyclopedia Americana	30 00
For State Appropriation	4,000 00
Total cash	$18,940 57

TOTAL DISBURSEMENTS FROM APRIL 1ST, 1863, TO JANUARY 1ST, 1864.

Date.	Name and Purpose.	Amount.
May.....1	Robinson for Ross	$359 00
1	C. H. Grimm, expenses on silver ware	2 50
June....4	N. L. Drew, money borrowed	150 00
4	Wells, Fargo & Co., for Geo. H. Baker	152 50
July ...11	I. N. Hoag, Secretary's salary April, May, and June	456 35
Aug...12	Wilson Flint, salary	200 00
12	Secretary's salary	150 00
Sept...24	Disbursements Secretary and Visiting Committee	476 81

Date.	Name and Purpose.	Amount.
Sept...30	J. L. Eoff, entrance fees returned	$110 00
Oct.....3	Gas bills at hall	238 90
3	Disbursements of Finance Committee	40 00
5	W. F. Williamson, Entry Clerk	90 00
5	Wm. Bryan, Porter	18 00
5	C. H. Shear, entrance fee returned	30 00
5	B. F. Peckham, Gatekeeper	40 00
5	D. K. Drew, Ticket Seller	32 00
5	Wilson Flint, Salary	360 80
5	Secretary's salary, August and September	300 00
5	G. W. Ramsdell, Night Watch	28 00
5	M. E. Gelston, Assistant Clerk	36 00
5	M. T. Crowell, Doorkeeper	40 00
5	H. S. Beals, Usher	59 00
5	James Maddox, Ticket Clerk.	35 00
5	Moulthrop, labor	19 00
5	John Walker, labor	7 50
5	Margaret Cobb, Waiter	21 00
5	Henry Yautis, labor	21 00
5	Henry Lepp, labor	16 50
5	N. B. Kendall, Night Watch	32 00
5	M. Wormer, Gatekeeper	36 00
5	Frank Swift, Watchman	54 00
5	Justus Hovey, for Galloway	33 00
5	Geo. B. Dean, Carpenter	48 00
5	J. T. Roberts, Doorkeeper	24 00
5	J. T. Clark, Entry Clerk	42 50
5	Geo. Whitlock, Assistant Superintendent	28 00
5	R. Stewart, Doorkeeper	28 00
5	Samuel Deal, Doorkeeper	24 00
5	William Allen, Gatekeeper	40 00
6	G. P. Warner, Ticket Clerk	40 00
6	James Daniels, clearing hall	21 00
6	S. W. Perry, labor	8 50
6	C. C. Smith, Carpenter	82 00
6	Charles Gibbs, labor	39 00
6	L. Culver, Assistant Superintendent	28 00
6	L. C. Powers, Day Watch	42 00
6	H. Grimshaw, labor	40 00
6	James Curtis, labor	17 50
6	J. Brown, police	8 00
6	Jesse Morrill, Assistant Superintendent	28 00
6	Wilbrum, cleaning well	5 00
6	G. A. Fabricius, Watch	48 00
6	J. V. Hoag, Gatekeeper	36 00
6	James Queen, Ticket Clerk	45 00
6	L. B. Robbins, Doorkeeper	4 00
6	W. L. Hawkins, Ticket Clerk	35 00
8	Justus Hovey, disbursements	39 00

Date.	Name and Purpose.	Amount.
Oct.....8	C. Hardenburg, cleaning seats	$45 00
8	David Herring, Porter	4 00
8	N. L. Drew & Co., lumber, etc	496 44
8	James Lansing, Assistant Superintendent	72 00
8	John Bigler, (assignee Dodge, for wells)	110 80
9	F. Woodward, Carpenter	123 50
9	T. J. McKimm, Engineer	152 50
9	L. B. Drew, team work	25 00
9	O. C. Carroll, straw	158 45
9	Wilson Flint, Visiting Committee's expenses	64 50
9	Justus Hovey, Superintendent Park	165 90
9	I. N. Hoag, for California Farmer	48 50
9	J. P. Melchior, music	725 00
9	Locke & Lavenson, merchandise	484 00
9	Wright's order, Entry Clerk	36 00
9	E. H. Astberry, lighting hall	15 75
9	E. B. Ryan, Treasurer	250 00
9	T. B. Hatch, Entry Clerk	42 00
9	James Anthony & Co., printing	440 45
9	J. P. Melchoir's order, Harris	25 00
9	F. Klots, wood	45 00
9	B. Cahoon, use of lumber	152 40
9	Green & Trainer, hay	688 29
9	W. Ratcliff, blacksmithing	10 00
9	M. Devine, draying	40 00
9	John Emerson, cleaning lamps, etc	23 00
9	Fredricks & Krebs, merchandise	7 00
9	B. R. Sweetland, merchandise	3 37
9	W. H. Tobey & Co., advertising	47 00
9	Hammond & Co., merchandise	57 00
9	Phil. Caduc, ice	40 00
9	Huntington & Hopkins, merchandise	8 56
9	D. W. Clark, plumbing	100 00
9	Edwards & Co., stationery	76 25
9	H. S. Crocker, printing	437 12
9	A. Badlam, printing	21 00
9	A. Dennery & Co., use of crockery	41 13
9	Treadwell & Co., merchandise	22 50
9	Goodwin & Co., use of chairs	50 75
9	Morrison & Gover, sundries	100 00
9	Milton Morrison, entrance fee returned	40 00
9	Joseph Shaw, watering streets	175 00
10	Godchaux Brothers, merchandise	94 81
10	Deuel, Griffits & Co., merchandise	46 00
10	San Francisco Bulletin, advertising	30 00
10	James Matsy, on account of fountain	5 50
10	J. Hall, painting	3 50
10	Fuller & Heather, paints	66 50
10	J. Domingos, saw dust	3 00
10	George Rowland, postage	3 50
27	Wilson Flint, salary	100 00

Date.	Name and Purpose.	Amount.
Oct....27	William Sheek, police.....	$12 00
27	Bradley & Chesley, order..	122 50
27	O. C. Wheeler, salary.....	327 50
27	E. M. Skaggs, livery.....	15 00
Nov.. ...4	I. N. Hoag, salary and cash.....	157 00
4	J. Hovey, Superintendent at Park.....	45 00
5	Samuel Jelly, silver ware..	462 90
5	Joseph Shaw, watering streets.....	25 00
5	J. Rusan, Assistant Usher.....	6 00
5	James Pollet, sawing wood.....	6 00
5	F. S. Malone, carriage.....	7 50
5	J. W. Wilson, carriage.....	2 50
9	Wilson Flint, salary.....	100 00
9	L. B. Lardner, Reception Committee.....	5 00
9	Morrison & Gover, sundries.....	13 50
30	Wilson Flint, salary.....	50 00
Dec.....4	G. R. Warren, disbursements.....	20 00
4	James Pollet, sawing wood.....	3 00
4	Edwards & Co., stationery.....	35 50
4	H. S. Crocker & Co., printing.....	17 00
4	O. C. Wheeler, salary	110 00
4	I. N. Hoag, salary for November and December.....	300 00
25	California Farmer, papers for premiums.....	18 00
24	P. Caduc, balance on ice.....	20 00
24	H. Wachhorst, spoons	10 00
24	H. Wachhorst, napkin rings....	28 00
30	E. L. Barber, engraving.....	67 37
30	W. C. Nicholson, posting bills.....	5 00
30	G. H. Baker, diplomas.....	57 00
30	Lock & Lavenson, diploma frames..	337 50
30	George Cadwallader, Counsel	25 00
30	B. F. Hastings & Co., engine, books, silver ware, and assignment lease Park	2,700 00
30	J. Q. A. Warren, Wine, Wool, and Stock Journal, for premiums.....	24 00
30	California Farmer, for premiums paid in papers.....	18 00
30	Disbursements.....	133 00
	Total cash expenses other than premiums.....	$15,754 10

PREMIUMS PAID IN CASH.

Date.	To whom paid.	Amount.
Sept. 29	F. O. Townsend	$100 00
Oct. 3	J. A. Merritt	300 00
5	J. L. Eoff	300 00
5	William J. Williamson	100 00
5	S. Card	300 00
5	H. R. Hovey	170 00
5	V. Barnes	50 00
5	C. H. Shear	75 00
5	B. E. Harris	108 00
5	William B. Campbell	200 00
5	J. E. Moulthrop	4 00
5	Thomas Bedford	80 00
5	Milton Dale	98 00
9	T. J. McKimm	40 00
10	Aitken & Co	34 00
27	Seneca Daniels	325 00
28	Charles F. Reed	112 00
28	John Hall	84 00
30	Miss M. E. Smith	7 50
Nov. 3	H. M. Bernard	90 00
3	J. C. Davis	197 00
4	J. D. Patterson	164 00
5	William C. Felch	3 00
7	D. DeBomarde	5 00
13	Mrs. William Windmiller	5 00
14	Willam Allen	4 00
14	Miss E. A. Spaulding	3 00
21	Mrs. W. A. Hedenberg	3 00
21	J. R. Nickerson	87 00
21	Miss A. E. Hoag	3 00
21	Miss N. Reynolds	4 00
21	Mrs. J. W. Willard	3 00
30	A. Gaffnesch	6 75
30	L. E. Miller	3 00
30	George E. Coggshall	24 00
30	J. B. Hoyt	23 00
	Premiums paid in cash	$3,115 25
	Current expenses paid in cash	15,754 10
	Total cash disbursements	$18,869 35
	Cash in hands of Treasurer for the redemption of warrants on the General Fund	71 22
		$18,940 57

ACCOUNTS BALANCED BY OFFSETS.

Name and Purpose.		Dr.	Cr.
Edwards & Co.....	To Rent for soda fountain...	$50 00	
	By deduction from bill	.....	$50 00
F. Woodward	To one renewal membership	5 00	
	By deduction on bill labor...	.....	5 00
Morrison & Gover...	To lumber used.....	60 00	
	By receipt bill teaming.....	.....	60 00
Lord, Holbrook & Co.	To value silver cup over awarded you for premium	5 38	
	By receipt bill merchandise rendered	.....	5 38
M. T. Crowell.....	To balance rent of bar.....	15 00	
	By deduction bill for labor..	.....	15 00
Lyman Dodge.....	To one renewal membership and lumber.....	9 20	
	By deducting bill for wells..	.....	9 20
O. C. Wheeler.....	To order of Bugby on you..	40 00	
	By acceptance and deduction on bill.....	.....	40 00
B. M. Bugby.....	To one certificate life membership	40 00	
	By receipt order on Wheeler	.....	40 00
		$224 58	$224 58
Bring forward the cash accounts, and we have the entire financial transactions of every description		$19,165 15	$19,165 15

ACCOUNT OF SILVER WARE AND BOOKS.

May.....1	Received of C. H. Grimm, silver ware.	$865 00	
Nov 5	Received of Samuel Jelly, silver ware.	585 00	
8	Received of Samuel Jelly, silver ware.	552 50	
Dec.....30	Received of B. F. Hastings & Co., silver ware.....	539 25	
	Received of B. F. Hastings & Co., books.....	239 72	
	Total.....		$2,781 47
	Paid premiums in silver ware to date..	$1,667 50	
	Paid premiums in books to date.....	112 22	
	Sold books to R. T. Brown.....	30 00	
	Deduction on books sold.....	15 00	
	Silver ware in hands of Treasurer.....	874 25	
	Books in hands of Secretary.....	82 50	
	Total.....		$2,781 47

STATEMENT OF WARRANTS

Drawn on the General Fund for Debts due January 1, 1863, *under the Funding Act, approved April* 13, 1863.

Date.	In whose favor.	Amount.
June ...3	F. J. Moore	$120 45
3	Thomas O'Brian	35 00
3	G. H. Swinerton	30 50
3	Phil. Caduc	63 94
3	Locke & Lavenson	105 43
3	Huntington & Hopkins	20 41
3	Dennery & Bro	18 00
3	W. H. Tobey & Co	30 00
3	James Anthony & Co	79 63
3	William F. Knox	85 05
3	S. B. Leavitt	68 25
3	Friend & Terry	129 46
3	Thomas Ogg Shaw	67 50
3	Martha Cochran	112 90
3	Chase & Boruck	30 00
3	Williams & Calvyn	12 00
3	John Roche	35 50
3	A. Badlam, Sen	81 00
3	H. M. Bernard	15 50
3	E. M. Skaggs	29 00
3	Peter Donahue	70 00
3	A. G. Hoagland	95 00
3	H. S. Crocker & Co	10 95
3	J. Domingos	19 00
3	L. Lotthammer	240 00
3	Fuller & Heather	93 50
3	Sacramento Gas Company	226 75
3	J. M. Hubbard	240 00
3	P. H. Russell	15 88
3	John J. Murphy	132 93
3	H. W. Larkin	1,625 00
3	Leonard & Seaman	151 92
3	Wells, Fargo & Co.	10 50
3	N. A. H. Ball	150 00
3	T. A. Talbert	30 00
3	J. L. Morrill	75 00
3	M. Devine	20 50
July...11	C. Crocker	37 33
11	H. R. Covey	17 55
11	M. Fitzpatrick	267 00
11	James Lansing	25 00
11	O. C. Wheeler	798 57
11	D. W. Clark	65 90
11	Grimes & Felton	19 75
11	James Hawks	8 50

Date.	In whose favor.	Amount.
July...11	Paine Brothers	$12 00
11	John Emerson	52 00
11	M. R. Rose	35 00
11	N. L. Drew & Co	1,712 23
11	C. S. Lowell	185 92
11	F. S. Malone	207 35
11	Owen Cunningham	25 00
11	D. W. Earl & Co	934 36
11	L. Stanford	6 00
11	D. S. Smith	44 50
11	Treadwell & Co	4 00
11	Harmon & Hartley	188 00
11	A. G. Plummer	5 63
11	J. G. Clark & Co	100 00
11	William Morehead	40 00
11	Hammond & Co	14 22
11	A. Lamott	12 00
11	Charles H. Ross	598 40
11	Joseph Shaw	28 82
11	N. Greene Curtis	3,417 18
11	L. B. Harris	4,906 25
11	M. A. Ames	62 50
11	John Yule	240 00
11	J. D. Tate	35 00
11	John Rider	163 39
11	B. F. Hastings & Co	75 00
	Total funded indebtedness	$18,738 90
	To this add one note held by Charles Crocker, and interest on the same to date, amounting to	554 66
	Entire indebtedness of Society, exclusive of interest	$19,292 56

Deduct this from twenty-six thousand four hundred and seventy-three dollars and fifty-eight cents—the amount shown by the Financial Secretary's last annual report to have been the indebtedness of the Society on the eleventh day of March, eighteen hundred and sixty-three—and we have the sum of seven thousand one hundred and eighty-one dollars and two cents, which has been cancelled by the present Board since they assumed the management of the society.

And here, perhaps, it may be well to remark, that the above indebtedness has been accumulating through a term of years, partly in consequence of losses by floods, and partly, as we are compelled to believe, in consequence of a system of management based more upon the hopes of future financial successes, than the experiences of the past and the certainties of the present.

But, however accumulated, the sooner it is paid the better it will be for the society and the material interests of the State, for a society thus encumbered, and with a consequent impaired credit, labors under many

embarrassments in attempting the accomplishment of the objects for which it was organized. Every business man's experience teaches this. Therefore, every friend of the society and of the State will say: "Let the debt be paid." But the practical and more difficult question is: How shall it be done? A few thousand dollars placed in the Redemption Fund of the society to be used by the Board, as required by the Funding Act of last winter, would redeem every obligation, and set free the hands of the society to enter upon the much needed work of assisting and encouraging the drooping interests of Agriculture of the State. This is a State institution, and through the channel of this society, when properly conducted, will the people of other States and countries become acquainted with our agricultural capacities, our mineral wealth, and the elements of our material prosperity of every description. Through its exertions and transactions will capital be invited to our shores, and emigration will seek here certain and abundantly remunerative labor. Then it is a State necessity, a demand of political economy, that this society should be prospered and assisted in its present embarrassment. Indeed, it is doubtful whether the State could appropriate the same amount of money in any other direction, or to any other institution within her borders, and meet with so rapid and certain a return, with interest added. Without further comment, we respectfully commend the subject to the favorable consideration of our Legislature.

CONTRIBUTIONS TO THE SOCIETY'S LIBRARY WITHIN THE PAST YEAR.

By W. C. Stratton, State Librarian: Journals and Appendices of the Assembly and Senate of California, for the first, second, fifth, sixth, seventh, eighth, ninth, tenth, eleventh, twelfth, and thirteenth, sessions; also, the California Statutes for the years eighteen hundred and fifty-four, eighteen hundred and fifty-five, eighteen hundred and fifty-six, eighteen hundred and fifty-seven, eighteen hundred and fifty-eight, and eighteen hundred and fifty-nine. In all forty volumes.

By the late W. H. Weeks, Secretary of State: Statutes of eighteen hundred and sixty-two and eighteen hundred and sixy-three.

The above were to supply the loss of the society by the floods of eighteen hundred and sixty-two, when they lost almost their entire library.

By William H. Barton: The President's Message and diplomatic correspondence of eighteen hundred and sixty-two.

By William R. Staples, Secretary: Transactions of the Rhode Island Society for the Encouragement of Domestic Industry for the year eighteen hundred and sixty-two.

By Hon. A. A. Sargent: Thirteen copies of Patent Office Reports for eighteen hundred and sixty-one.

By Prof. A. D. Bache, Superintendent: Report of the progress of the Coast Survey for the year eighteen hundred and sixty-one.

By J. Forbes Watson, A. M., M. D.: Reports on the products of India—a classified and descriptive catalogue of the Indian Department, twelve volumes.

By the Proprietors and Publishers: The following papers have been forwarded regularly to the society, free, during the year:

The California Farmer;
The Spirit of the Times;
The Red Bluff Beacon;

The Knight's Landing News;
The Wine, Wool, and Stock Journal;
The Mining and Scientific Press;
The Prairie Farmer, (Illinois);
The Genessee Farmer, (New York);
The Canadian Agriculturist, (Upper Canada);
The Journal of the New York State Agricultural Society.

On the seventh of November last the Secretary, with the approval of the Board, mailed the following circular to all the journals and newspapers on this coast. The circular itself will explain its object:

[Circular.]

ROOMS OF THE STATE AGRICULTURAL SOCIETY,
Sacramento, November 7th, 1863.

To the Editor and Proprietor of the ——— ———.

GENTLEMEN:—Engaged as you are in publishing a journal in which you record with fidelity the facts and occurrences that are to make up the future history of our country, and particularly that of this coast, none are better prepared to place a correct estimate upon a library which shall embrace in its catalogue all the different newspapers and periodicals on this coast, than yourselves.

Desirous of being instrumental in the initiation of so important an undertaking, and believing that you will gladly second their efforts, the State Board of Agriculture have authorized me to make to you the following proposition, viz: If you will forward by mail to my address as Secretary, each future issue of your journal, the file shall be faithfully and neatly kept, and at the end of each volume the Board will have the same well bound and placed in the Society's Library, for the perusal of all who may desire, and for the benefit of those who shall write and those who shall read the future history of this coast.

The Board have also instructed me to solicit you to act as Agents of the society in collecting and forwarding to the Secretary, by Wells, Fargo & Co., (if requested they will bring them free,) any specimens of minerals or curiosities of any kind that, in your judgment, will add to the value or interest of the society's Cabinet and Museum.

In collecting minerals from the different mines much may be added to the geological value of the collection by saving such specimens as will best show the changes in the indications, from the surface or croppings until the rich mineral is reached. And also, much may be added to the value of the Cabinet by the possession of duplicates, for exchanges with other Cabinets in different parts of the world. And it is a fact that geological specimens from this coast, at the present time, are in greater demand and more sought for, particularly in European countries, than those from any other country; and hence, by a proper effort, very advantageous exchanges can now be made, and we desire to take advantage of these circumstances and secure here a Cabinet unequalled in the world. A book is kept in which the proper credit is given for any specimens or other articles donated to the society, and neat and appropriate cases are being provided for their safe keeping and exhibition.

By giving the above your favorable consideration, and interesting yourselves and readers in the accomplishment of the objects specified, you will place the Board under renewed obligations, and confer a favor on

Your humble servant,

I. N. HOAG, Secretary.

In response to the above, we are now receiving regularly at our rooms the following journals and papers:

Sacramento Daily Union;
Daily California Express;
Virginia Evening Bulletin;
Daily Democratic Press;
Placerville Daily News;
California Democrat;
L'Echo du Pacifique;
San Francisco Abend Post;
El Eco del Pacifico;

Alameda County Gazette;
Weekly Trinity Journal;
Semi-Weekly Independent;
Monitor;
San José Mercury;
Sierra Weekly Union;
Weekly Democrat;
Quincy Union;
Santa Cruz Sentinel;
Stars and Stripes;
Golden Era;
Calaveras Chronicle;
San Mateo County Gazette;
Sonoma County Journal;
Ione Chronicle;
Sacramento Daily Bee;
American Flag;
Amador Dispatch;
Mercantile Gazette and Prices Current;
La Voz de Mejico;
Pacific;
California Ledger;
Sierra Democrat;
Solano Press;
Esmeralda Star;
Napa County Reporter;
Oroville Weekly Union;
World's Crisis;
Dutch Flat Inquirer;
Weekly Colusa Sun;
Tuolumne Courier;
Marin County Journal;
California Christian Advocate;
Merced Banner;
Semi-Weekly Solano Herald;
Pacific Appeal;
Western Evangelist;
Oregon Democrat;
Oregon Statesman;
Oregon Weekly Times;
Weekly Mountaineer, (Oregon;)
Sunday Mercury;
Folsom Telegraph;
Golden Age, (Idaho Territory.)

A number of other papers come occasionally; and for the liberality towards the society, and the interest manifested in its success by the press of the coast, the Board return their sincere thanks. They are led to look to the same source, with confidence that they will also receive many valuable contributions to the Cabinet and Museum. Future years will attest the value of a library thus accumulated, to say nothing of the present importance and benefit to the society of such a medium of receiving and disbursing information to every part of the coast.

ADDRESS OF GOVERNOR STANFORD,

AT THE OPENING OF THE TENTH ANNUAL FAIR OF THE STATE AGRICULTURAL SOCIETY, AT SACRAMENTO.

The following is the opening address delivered by the Governor of the State, Leland Stanford, on Saturday evening, September twenty-sixth, eighteen hundred and sixty-three:

Mr. President, Ladies, and Gentlemen:

The State Fair is a great holiday. It is a time of physical relaxation and of general social enjoyment. We may congratulate ourselves that it is so. All public gatherings, affording innocent pleasure and amusement, tend to the virtue and permanent happiness of a people. But the State Fair possesses an importance, independent of its pleasures and amusements. The State, by liberal donations in its aid, has affixed to it her estimation of its benificent effect upon the commonwealth, and stamping it with high dignity and importance. This noble exhibition of the products of California is not for mere show, nor this pleasant gathering of her people for mere amusement. You are assembled together for a higher purpose—for an object that has real practical value; though, in carrying out the undertaking, it is sought to afford all the gratification possible incident to the great end.

It has become a custom, on occasions like this, that there should be what is called an opening address, and your society has this year assigned to me the honor of delivering it. So much, however, has been said, and so much written, upon the subject of agriculture, that I shall think myself particularly fortunate if I am able to-night to impart to this intelligent assemblage a single idea which will induce reflection upon that interest of our State which has called together this annual gathering of its devotees.

How you are to fertilize your farms, when and how to put in the seed for your crops, how to rear and improve your stock, how to plant your vineyards and orchards, how to perfect the quality of your butter and cheese, how as artisans and mechanics you are to handle the various implements of your calling, it would be presumption for me to indicate. I seek to draw your attention to the importance and the nobleness of your pursuits, in the hope that you may be induced to prosecute them with a

new energy, and with a determination, as far as may be, to master them; and to awaken for the subject an additional respect, that more gratifying results may, if possible, be obtained.

All labor, in legitimate pursuits, is honorable; but the status of a profession depends much upon its importance to man's welfare, the amount of ability required for its successful prosecution, and the character of those who follow it. Judged in this connection, and the calling of the farmer attains the very highest standard.

To man's necessities, comfort, and happiness, the tilling of the soil and the yield it may be made to produce, are of the first consequence; and an intelligent prosecution of his work requires from the agriculturist a familiarity with the causes and effects of his labor, and a knowledge of botany and chemistry, which aids him in the development of his resources and elevates his calling to the dignity of a science. As to the character and standing of those who have tilled the soil, history, both sacred and profane, abounds with the names of many who were renowned and illustrious in public and private life; and this, too, from the very creation of the world; for agriculture, while it is the noblest, is the oldest of all the arts.

Whether or not Adam was a tiller of the soil, is a question that may be left to the wide field of uncertainty which surrounds that early period in the history of man; but that his two sons were farmers, is proved beyond a doubt in the book of Genesis, where Cain is introduced as a "tiller of the ground," and Abel as a "keeper of sheep." At this primitive age, and for centuries thereafter, agriculture and religion went hand in hand. The noblest patriarchs and the most venerated sages testified their belief in the Most High, by erecting altars to His name, and by sacrificing thereon "the firstlings of their flocks." Abraham, Isaac, and Jacob were farmers, owning large tracts of land, "rich in cattle," and fruitful in the products of the field and vine.

The classic authors and orators of Greece and Rome delighted to write and speak upon the subject of agriculture, and labored to instil a love for it into the minds of their readers and hearers. In those ancient times, the highest citizens and the most prominent statesmen—the most successful warriors and the most convincing writers—were cultivators of the soil. Even kings and princes have been known to resign their power to become farmers, while farmers have been called from the field to become kings. The familiar story of Cincinnatus, who had in the days of the old Roman Republic received an embassy from the people while in the very act of plowing in the field, had an illustrious prototype in the example of Elisha, whose mantle of a prophet was urged upon him while working his land with a team of twelve yoke of oxen.

By the law under which Rome was organized, every citizen was entitled to one and one fifth acres of land in his own right. This was subject to mortgage, sale, and bequest, but no man was allowed ever to accumulate more than three hundred acres, either by purchase or otherwise. In those days large farms were not regarded as a *sine qua non* to happiness and success. In fact, it was remarked by an orator of that time that "he was not to be accounted a good citizen, but rather a dangerous man to the State, who could not content himself with seven acres of land."

Cato urges it, "as a grand point of husbandry, not to have too much land in one farm, there being more profit in holding little and tilling it well." And Virgil, whose noble poems on rural life are read in every college, says "the farmer may praise large estates, but let him cultivate

a small one." Thus it will be seen that though in these modern days of machinery, and our consequent ability to cultivate more land, our farmers may take the hint, and whether they cultivate small or large farms, be careful to cultivate them well, lest they risk their reputations as good citizens, and live under the imputation of being dangerous to the State.

Among many of the great of modern times who have devoted themselves to farming, and whose names from their familiarity it is unnecessary to mention, in support of this branch of the subject, it would not be well to pass that of him who was "first in peace" as in war. Few, probably, ever possessed so keen a love for rural pursuits, and a more unyielding pride in the profession of a farmer, than George Washington. Always an early riser, he was enabled to see that the day's work was properly begun, and careful to exact the utmost accuracy and fidelity from those he employed to manage his various farms. Before the war, his name was known in London as the most reliable planter in Virginia, and the produce of his plantation would command a better price than those of any other in the Colonies. In the West India ports "the products of his estate also became so noted for the faithfulness as to quality and quantity with which they were put up, that it is said any barrel of flour that bore the brand of George Washington was exempted from the customary inspection."

In a letter to a friend, Washington relates in a few simple words his experience of a farmer's life. "I think with you," he says, "that the life of a husbandman of all others is the most delightful. It is honorable, it is amusing, and with judicious management it is profitable." Such was the opinion, and we have seen what was the practice, of the Father of his Country. If it be true, then, that the dignity of a calling depends upon the character of those who pursue it, the status of an agriculturalist has been fixed and ennobled from the remotest ages to the present time.

The history of ancient agriculture, imperfect as it is, shows that it reached its culminating point as an art during the palmiest days of Greek and Roman rule. With the darkness that enshrouded the world upon the destruction of the Roman Empire, the farming interests of the day partook of the general gloom; and the impetus given to agriculture by the intelligent cultivation that prevailed at the beginning of the Christian era was mostly lost during the middle ages. For hundreds of years the inhabitants of Europe were taught the science of war, to the almost entire exclusion of the arts of peace. The raising of stock, mostly of an inferior kind, was about all the farming that was carried on during these dark ages.

In England, as late as the sixteenth century, the science of farming was not understood; as an *art* it was in its rudest state. But a small variety of grains were cultivated, and even the names of some of the simplest vegetables were unknown. The inhabitants, rich as well as poor, lived mostly upon animal food, and that of the coarsest kind. At an important feast it was customary to add poultry, game, and fish to the usual variety of mutton, bacon, and beef. Vegetables are seldom mentioned by the writers of those days, except as accompaniments to their rarest entertainments.

Of one of the wives of Henry VIII, it is related that she was obliged to depend upon Holland for a supply of lettuce for her table, and the King himself had never seen corn or potatoes, carrots, cabbages, or turnips. In our time, these vegetables, esteemed in those days as luxuries

by the rich, are but necessaries to the poor. About the time of our Revolutionary War, Arthur Young, a practical agriculturist in England, made it his business to travel about the country to consult with farmers and examine farms. His efforts to awaken an interest in the pursuit he loved were eminently successful, and one of the great results of his endeavors was to set the farming world a thinking, and to induce a thorough investigation of the properties of soils, and of the best mode of improving them. From this time the advance in agriculture has been immense, one of its chief aids having been the perfection to which agricultural machinery has been brought.

What giant strides have been made in the management of the farm, and in the invention of machinery for the saving of labor, since the time when the sickle was only used to cut, and the flail to thresh the grain! Within the last thirty years more has been accomplished in the great work of supplying the constantly increasing population of the world with the cereal products of the soil than had been done during the nearly six thousand years which preceded them. Some one has said that he who causes two blades of grass to grow where one grew before is a public benefactor. Can we not say, then, that McCormick, and Manny, and Pitt, and those other inventors of agricultural machinery who have added so much to the yield of breadstuffs in our country, are true benefactors of the human race? Are there any still left who doubt the policy of this wholesale introduction of labor saving machinery to the wants of the farm, lest manual labor shall become a drug? To such, I would say, be not alarmed; add what you will to the individual or general wealth of a country, and you only develop a demand for labor at remunerative wages. Man's desires increase in proportion, a compound one, to his ability for gratifying them. There has never been a period in the history of mankind so fruitful in all the productions of the earth as the one in which we live, and no period when the laboring man has reaped richer benefits as the reward of his toil. In our country there is a constant and enormous increase in the products of the soil, and a corresponding increase in the demand for labor.

In illustration, the increase in the wheat crop in the United States from eighteen hundred and fifty to eighteen hundred and sixty was over seventy millions of bushels, while the increase of corn was more than two hundred and thirty millions of bushels. The increase in the value of farming implements during the same period was in the neighborhood of one hundred millions of dollars. The value of live stock has increased in the same time five hundred millions. With these data, it is safe to estimate that the increased value of farm productions alone in all the States and Territories, between eighteen hundred and sixty and eighteen hundred and seventy, would more than pay the entire cost to the North of the present rebellion. The increase in the value of farms between eighteen hundred and fifty and eighteen hundred and sixty, in the two agricultural States of Illinois and Indiana, was about five hundred and fifty millions of dollars, while in the whole United States the increase was considerably more than three thousand millions.

With the rate of taxation *enjoyed* during the last year or more by the people of Sacramento applied to the States of Indiana and Illinois for the next five years, these two farming States, by themselves, would pay taxes sufficient to wipe out the whole National debt, after a bitter war of two and a half years.

From these facts, we can see how, with our free institutions of the North, the triumphs of peace go hand in hand with the victories of war.

While a portion of our country is shaken with the conflict of contending armies, the farmers of the West are ploughing up their boundless prairies, and each year preparing for a harvest that is to feed millions of their countrymen, and other millions of other lands. They send their products to the nearest cities, that grow rich and magnificent by the transit of this illimitable wealth. Railroads are built, towns and cities spring into life, the mechanic arts are employed in full force, and commerce, year by year, feels the inspiring effect. In fact, the growth of cities, fostered by the agricultural wealth that surrounds them, is a remarkable feature in the civilization of the nineteenth century.

The rise and progress of the City of San Francisco, built up as she has been by the power of gold, and presided over by the genius of commerce, has wrung from the civilized world its wonder and amazement. But enormous as her prosperity has been, and astonishing as her enterprise has become, she has more than a parallel in Chicago, a sister city of a farming State, whose growth has been nurtured by the genius of agriculture, and whose towering warehouses are monuments dedicated to Ceres, goddess of harvest. In eighteen hundred and thirty-three, the Town of Chicago was organized and an election held, when twenty-eight votes were all that could be found within the limits of the place. In eighteen hundred and sixty, twenty-seven years later, she could boast a population of one hundred and nine thousand two hundred and sixty. In eighteen hundred and fifty-seven, when but twenty-four years of age, she was acknowledged as the largest grain depot in the world, having received into her warehouses that year something like twenty-two millions of bushels of grain, being twice as much as was received during the same period at St. Petersburg, the leading grain depot of the Russian Empire. In that season, there was packed in Chicago forty-two thousand barrels of beef, and shipped from her wharves twenty-five thousand head of cattle, and more than two hundred thousand head of hogs. There are now completed some four thousand miles of railroads that centre there, upon which more than one hundred trains of passenger and freight cars arrive and depart daily. Her grain warehouses, by their wondrous capacity, and by the powerful machinery used to facilitate their operations, are visited as objects of curiosity by travellers from every part of the world. Such are the triumphs produced—such is the power wielded by a thorough, systematic, and aggregated pursuit of this one branch of industry.

The census report of eighteen hundred and sixty presents an unusual amount of valuable information relative to the condition of agriculture in California. According to the statistics presented there, the increase in the value of live stock in our State, from eighteen hundred and fifty to eighteen hundred and sixty, was over thirty-three millions of dollars; the increase in the value of farms, about forty-three millions; in the value of farming implements, more than two millions; and in farm productions other than live stock, something like fifteen millions. These figures exhibit a glowing, gratifying condition of the agricultural interest of California. If such results have been obtained during a period of ten years in our State, what may we not expect during the lifetime of many a farmer now cultivating our soil?

With a territory extending north and south a distance equal to the distance from the southern boundary of New York to nearly the northern boundary of Florida, California has within her limits a variety of soil and a variety of climate which will yield all the productions that are grown in the Atlantic States. Already the first State in the Union

in the production of barley, the second, if not the first, in the production of wine, the sixth in the production of wheat, may we not confidently expect that in the census of eighteen hundred and seventy she may take a front rank as the producer of other important staples of the farm?

The law of April twenty-fifth, eighteen hundred and sixty-two, for the encouragement of agriculture and manufactures in California, is calculated to awaken a deep interest in those branches of industry which have accomplished so much in building up and maintaining the wealth of some of our sister States. This law, which appropriates one hundred and fourteen thousand four hundred dollars in premiums of various amounts for the development of our agricultural and mechanical resources, should be examined by every farmer in the land. Premiums to the amount of fifteen thousand five hundred dollars are offered in different sums for the production of cotton plantations and the growth of cotton; seven thousand two hundred dollars for hemp and flax; three thousand seven hundred dollars for molasses and sugar; three thousand six hundred dollars for tobacco; four thousand seven hundred dollars for rice; two thousand two hundred dollars for hops; twelve thousand dollars for tea and coffee, besides large sums for manufactured articles.

This bill is in all respects a practical one, and it would be a benefit to California if her Treasurer was called upon this year to pay every dollar of premiums recognized by its provisions. It was thought by some that the premiums were too numerous and too high; but in my opinion they should rather be increased than decreased. For instance, in proportion to our population, the State of California will have, in five years, more orchard productions than any other State or country in the world, and it will be a question with the farmer what to do with them. I would therefore suggest a liberal premium for the first hundred barrels of dried apples, and the first hundred half-barrels of dried peaches or plums, so packed as to keep through a California season. I would also suggest a premium for the first hundred firkins of butter, and the first two hundred barrels of beef and pork, put up in a manner that would stand the test of our own or any foreign climate. At the same time it would not be amiss to offer liberal premiums for raisins, figs, nuts of all kinds, and choice wines, to take the place of foreign varieties. To stop the importation of these articles would be adding vastly to the resources of the State; and when the gold that goes abroad to pay for them is kept at home, we shall have money for internal improvements, and shall not be obliged to follow our shipments of treasure into foreign climes, in order to beg it back again at an enormous interest, for the purpose of building our much needed railroads.

That the provisions of the Act may be freely understood, and that our farmers may be apprised of the fact that the Legislature of California is disposed to do all it can to foster and promote their interests, it would not be out of place for the agricultural papers of the farming districts to copy it entire for the benefit of their readers. Its provisions should also be known in the farming communities on the Atlantic side, that their attention may be directed, not to our resources alone, but to the means taken, by a liberal policy, to develop them.

Possessing, as we do, a State having a soil and climate capable of growing the products of every other State in the Union, we are in a position to invite emigration from every portion of our country, and to add to our invitation the assurance that whoever comes to us may indulge in the congenial pursuits that obtain in their native districts.

It is undoubtedly true that thousands, and perhaps hundreds of thousands, daily look from their homes in the far East toward the setting sun, while they earnestly labor to hoard the means to bring themselves and their families to this favored land. They think of the wide barrier of mountain and desert that lies between them and the fertile fields on the Pacific slope, and many is the heart that sinks with despair in view of the (to them) small fortune that is required to transport themselves and their household treasures to this alluring State. If they propose to themselves a journey over the plains, they think of the time lost, and the dangers that attend the dull, fatiguing, and monstrous trip.

Looking at the statistics of emigration to some of the strictly agricultural States during the ten years that preceded the census of eighteen hundred and sixty, that are comparatively easy of access—States that commenced their onward career almost simultaneously with our own—we have cause for astonishment, as we study their ratio of emigration, to find how greatly they are in excess of California. The increase in the population of Iowa, during the decade just mentioned, was, according to last census, four hundred and eighty-two thousand six hundred and ninety-nine. The increase in Wisconsin was four hundred and seventy thousand three hundred and ninety—while the increase in California was but two hundred and eighty-seven thousand four hundred and ninety-seven. Now, of this increase in our own State, it is probable that at least two thirds were attracted thither, not as farmers to cultivate the soil, but as representatives of other interests, who came to this coast to profit by the mineral wealth, of which fabulous stories have been spread far and wide. This would leave less than one hundred thousand persons that could be considered as strictly among the farming immigration to California during the ten years between eighteen hundred and fifty and eighteen hundred and sixty. In that time Iowa and Wisconsin each received nearly five times as many persons to add to their agricultural population.

To remedy this state of affairs, and to divert this vast moving population, which will increase, year by year, to our own shores, two things are necessary to be accomplished:

First—To spread out before the farming communities of other States authentic information, in the shape of reliable statistics, as to the productions of our soil, and the noble field that is here offered for the industrious and energetic farmer.

Second—To provide all who desire to emigrate, a safe, expeditious, and easy means of accomplishing their purpose.

Of the varied interests of California, none will reap richer benefits from a railroad across the continent than those depending upon the pursuit of agriculture. By it the attention of the world will be attracted to our State; its population will be augmented; new fields of industry will be explored, and new markets opened for the products of our soil. Indeed, with the construction of the Pacific Railroad—its inducements for immigration—the vast commercial relations it must establish—the great bay cities which, as one of its results, will in twenty-five years have a population of a million inhabitants—all these will create for the farmers of our State a market that will be almost illimitable in extent. It is well for agriculturists to consider the mighty future of the Pacific slope, and the consequent influence upon their *own* future so closely connected with it.

Surely there is much that the farmer is blest with in California. With

markets that will constantly increase, a soil that is generous, and a climate for farming purposes unsurpassed, he finds himself engaged in an occupation which, independent of its pecuniary results, is one of never-failing delight. Every vine, and shrub, and tree planted by his hands at once becomes an object of interest, and forms an association which attaches him to the soil and makes him a patriot. If he turns his attention to the raising of stock, he finds there, also, something beyond the mere calculations of gain. He experiences a pleasure in watching the growth and improvement of his animals, and in noting their good qualities; and the daily interest he takes in their well-being begets on their part an affectionate attachment, which of itself is a lasting reward.

Agriculture to the active intellect is fruitful in subjects of thought and contemplation, and when intelligently pursued the whole being is enriched by the vast field of knowledge it unfolds. It is an occupation that elevates the mind to a genial communion with surrounding nature; it is closely connected with the material wants of the whole human family; it developes, adorns, and beautifies the earth; it produces a healthy, thrifty, and virtuous population; and, more than any other known to man, adds to the pride, prosperity, and strength of a State. That it is intimately connected with the education and intelligence of a country, is clearly proved in the history of our country, as well as the history of the world. With us it is well known that those States where the education of the masses is most cared for, there the science of agriculture reaches its highest perfection; while the inhabitants of those States where ignorance and misery reign supreme are contented to live year after year in a condition closely allied to barbarism.

Viewed in this connection, the subject upon which we treat to-night is one which commends itself to every thoughtful citizen and to every well wisher of the land in which we live; and had I time I should be glad to make some suggestions that would lead to a discussion throughout our State as to the most feasible means of connecting the science and practice of agriculture with our Common Schools. The question, however, is one of vast importance—too vast to be enlarged upon at the close of a general address.

I have already exceeded the limits set apart by myself for the task which your kind invitation made it necessary for me to perform. To keep pace with the gigantic strides made year by year in the science of agriculture, and to publish the results of each year's experience, would involve the necessity of vast columns of statistics. I have avoided, as far as might be, the monotony of details, and have attempted to show, in as brief a manner as possible, the pleasure, the dignity, and the profit that attends the cultivation of the soil.

The Scriptures have given prominence to the subject through the writings of Moses and the experience of the prophets; the ancient classic authors have given it their meed of praise; historians have dwelt upon its importance; and poets, from time immemorial, have invested it with a charm peculiarly its own—

"Happy the man whose wish and care,
A few paternal acres bound;
Content to breathe his native air,
On his own ground.

"Whose herds with milk, whose fields with bread,
Whose flocks supply him with attire;
Whose trees in summer yield him shade,
In winter, fire.

"Blest, who can unconcern'dly find,
Hours, days, and years glide soft away;
In health of body, peace of mind,
Quiet by day.

"Sound sleep by night; study and ease
Together mixed; sweet recreation
And innocence, which most doth please,
With meditation."

AN ACT

FOR THE ENCOURAGEMENT OF AGRICULTURE AND MANUFACTURES IN CALIFORNIA.

[Approved April 25, 1863.]

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. There shall be paid, from any money in the Treasury not otherwise appropriated, to the producer claiming a premium by virtue of the provisions of this Act, the following sums for each of the articles herein enumerated, grown and manufactured in California:

For the first one hundred bags of sugar, containing one hundred pounds each, produced from sorghum, five hundred dollars. For the same quantity produced the next succeeding year, two hundred and fifty dollars. For the same quantity produced the second succeeding year, one hundred and fifty dollars. For the same quantity produced the third succeeding year, one hundred dollars.

For the same quantity of sugar produced from sugar cane, the same premiums, and upon the same conditions, shall be paid; and also for the same quantity produced from beet root, the same premium, upon the same conditions.

For the first two hundred barrels molasses, manufactured from sorghum, two hundred dollars. For the first two hundred barrels molasses, manufactured from sugar cane, five hundred dollars.

For the first two hundred bales of flax, of two hundred pounds each, one thousand dollars. For the same quantity produced in the first, second, and third succeeding years, three hundred dollars, two hundred dollars, and one hundred dollars, respectively. For the first one thousand bales of flax, of two hundred pounds each, two thousand dollars.

For the production of hemp, the same premiums as are awarded on flax.

For the first one hundred bales of cotton, of three hundred pounds each, three thousand dollars. For the same quantity produced in the first, second, and third succeeding years, two thousand, one thousand, and five hundred dollars, respectively.

For the first two hundred bales of tobacco, one hundred pounds each, three hundred dollars. For the same quantity produced the first, second, and third succeeding years, two hundred and fifty dollars, two hundred dollars, and one hundred and fifty dollars, respectively. For the first

one thousand bales, of one hundred pounds each, one thousand dollars. For the first one hundred cases, of fifty pounds each, of manufactured tobacco, two hundred and fifty dollars. For the same quantity in the first, second, and third succeeding years, two hundred dollars, one hundred and fifty dollars, and one hundred dollars, respectively. For the first one thousand cases of manufactured tobacco, of fifty pounds each, one thousand dollars.

For the first one thousand bales of hops, of two hundred pounds each, one thousand dollars. For the same quantity, produced in the first, second, and third succeeding years, six hundred dollars, four hundred dollars, and two hundred dollars, respectively.

For the first ten bales of raw silk, of one hundred pounds each, two thousand dollars. For the first one hundred bales of raw silk, of one hundred pounds each, five thousand dollars.

For the first one thousand pieces of cotton drilling, of forty yards each, two thousand dollars. For the first one thousand bales of cotton drilling, of sixteen hundred yards each, four thousand dollars.

For the first one thousand pieces of burlap, of forty yards each, suitable for grain sacks, two thousand dollars. For the first one thousand bales of the same quality and description, of sixteen hundred yards each, three thousand dollars. For the first one thousand pieces of burlap, of forty yards each, suitable for wool sacks, two thousand dollars. For the first one thousand bales, of sixteen hundred yards each, of same quality and description, two thousand dollars.

For the first one hundred pieces of hemp carpeting, colored, of forty yards each, two hundred dollars. For the first thousand pieces, of forty yards each, one thousand dollars.

For the first one hundred pieces of linen, of forty yards each, suitable for shirts or miners' frocks, one thousand dollars. For the first one thousand pieces of same description, one thousand dollars.

For the first one hundred pieces of calico, of thirty yards each, five hundred dollars. For the first one thousand pieces of calico, of thirty yards each, one thousand dollars.

For the first one hundred pieces of cotton shirting, of forty yards each, one thousand dollars. For the first one thousand pieces of cotton shirting, of forty yards each, one thousand dollars.

For the first hundred pieces of cotton sheeting, of forty yards each, one thousand dollars. For the first one thousand pieces of cotton sheeting, of forty yards each, one thousand dollars.

For the first one thousand pieces, of forty yards each, of pilot cloths, broad cloths, tweeds, or cassimeres, exported from the State, on each specification, two thousand dollars. On the first, second, and third succeeding shipment, of the same quantity, fifteen hundred dollars, one thousand dollars, and five hundred dollars, respctively, on each specification.

For the first one hundred bales of blankets, of forty pairs each, exported from the State, one thousand dollars. For the first one thousand bales of blankets, of forty pairs each, exported from the State, two thousand dollars.

For the first one hundred pieces of ingrain carpet, of sixty yards each, two hundred dollars. For the first thousand pieces of ingrain carpet, of sixty yards each, one thousand dollars. For the first one hundred pieces of Brussels carpet, of sixty yards each, two hundred dollars. For the first one thousand pieces of Brussels carpet, of sixty yards each, one thousand dollars.

For the first one thousand pairs of wool socks, two hundred and fifty dollars. For the first one thousand dozen wool socks, five hundred dollars.

For the first one thousand pairs woollen drawers, three hundred dollars. For the first one thousand dozen pairs of woollen drawers, five hundred dollars.

For the first one thousand woollen undershirts, three hundred dollars. For the first one thousand dozen woollen undershirts, five hundred dollars.

For the first twenty-five bales cottonized flax, of one hundred pounds each, one thousand dollars. For the first one thousand bales of cottonized flax, of one hundred pounds each, one thousand dollars.

For the first one hundred cases of men's boots, of twelve pairs each, five hundred dollars. For the first one thousand cases of men's boots, of twelve pairs each, one thousand dollars.

For the first one hundred cases men's shoes, of twenty-four pairs each, five hundred dollars. For the first one thousand cases men's shoes, of twenty-four pairs each, one thousand dollars.

For the first one hundred cases women's shoes, of thirty-six pairs each, five hundred dollars. For the first one thousand cases of women's shoes, of thirty-six pairs each, one thousand dollars.

For the first one hundred cases children's shoes, of forty-eight pairs each, two hundred and fifty dollars. For the first three hundred cases children's shoes, of forty-eight pairs each, five hundred dollars.

For the first ten chests of tea, of twenty-five pounds each, one thousand dollars. For the first one hundred chests of tea, of fifty pounds each, two thousand dollars. And for the same quantity of the same article produced the first, second, and third succeeding years, fifteen hundred dollars, one thousand dollars, and five hundred dollars, respectively.

For the production of coffee, the same premium shall be awarded as on the production of tea.

For the first one hundred coils of assorted cordage, of sizes not less than one inch, and length not less than sixty fathoms, two hundred and fifty dollars. For the same tarred, five hundred dollars.

For the first ten barrels of tar, two hundred dollars. For the first one hundred barrels of tar, five hundred dollars.

For the first ten barrels of rosin, one hundred and fifty dollars. For the first one hundred barrels of rosin, three hundred dollars.

For the first ten barrels of pitch, one hundred and fifty dollars. For the first one hundred barrels of pitch, three hundred dollars.

For the first one hundred gallons of spirits of turpentine, two hundred and fifty dollars. For the first one thousand gallons of spirits of turpentine, five hundred dollars.

For the first one hundred reams of printing paper, manufactured from cotton, five hundred dollars. Manufactured from any other fibre or material, the same premium; and for the first one thousand reams of each manufactured, one thousand dollars.

For the first book, of not less than three hundred pages, on the mining and industrial resources of California, printed on California paper, stitched with California thread, and bound in California skins and boards, five hundred dollars. For the second, of the same character and description, two hundred and fifty dollars. For the third, one hundred and fifty dollars.

For one thousand dozen of glass wine bottles, fifteen hundred dollars.

For the first one thousand cases of bottled beer, of two dozen each, exported, and proved to withstand sea voyages and changes of climate, fifteen hundred dollars. And for the first, second, and third succeeding shipment, one thousand dollars, seven hundred dollars, and five hundred dollars, respectively.

For the first one hundred packages of linseed oil, of twenty gallons each, one thousand dollars.

For the first one hundred packages of cotton seed oil, of twenty gallons each, one thousand dollars.

For the first plantation of cotton, of not less than ten acres, in bearing of good staple, one thousand dollars. For the first fifty acres of cotton in bearing of good staple, two thousand dollars For the first one hundred acres of cotton, in bearing of good staple, three thousand dollars. For the first plantation of tree cotton, of not less than ten acres, in bearing of good staple, three thousand dollars.

For the first ten cases of indigo, of one hundred pounds each, one thousand dollars.

For the first one thousand pounds of rice, two hundred and fifty dollars; for the first five thousand pounds of rice, five hundred dollars; for the first ten thousand pounds of rice, one thousand dollars; and for the same quantity produced the first, second, and third succeeding years, the same premium shall be paid.

Sec. 2. The President of the State Agricultural Society; the President of the Agricultural, Horticultural, and Mechanical Society of the Northern District; the President of the San Joaquin Valley Agricultural Society; the President of the Mechanical Institute in San Francisco, and the Governor of the State, who shall be President of the Board, shall constitute a Board of Judges, a majority of whom shall constitute a quorum for the transaction of all business, whose duty it shall be to examine and judge of the products herein mentioned, and award the premiums named to the parties entitled to them, according to the provisions of this Act.

Sec. 3. No person exhibiting any article or articles named in this Act shall be entitled to a premium therefor unless the articles so exhibited be good and merchantable, and the best of the kind so exhibited. And no article produced or manufactured within any one year shall be exhibited for premium herein offered more than once, and such exhibition shall be accompanied by a statement, in detail, of the culture or manufacture, and cost, together with satisfactory proof that the article or articles exhibited have not been before exhibited for any such premium, and that the same was produced or raised, and manufactured, within the State of California.

Sec. 4. The Judges shall fix upon the time and place of such exhibition of articles for premiums, but samples of all articles exhibited, or intended to be exhibited, within any given year, shall be exhibited by sample at the annual Fair of each of the societies named in this Act, within such year, or within the next succeeding year, and may receive such premiums from such societies as they may deem proper to offer, in accordance with the rules of such society.

Sec. 5. Upon the award of a premium to any person, the Judges shall certify the same to the Controller of State; and upon the presentation of such certificate to the Controller, he shall draw his warrant for the amount named therein, upon the State Treasurer, according to law.

AN ACT SUPPLEMENTAL TO AN ACT ENTITLED AN ACT FOR THE ENCOURAGEMENT OF AGRICULTURE AND MANUFACTURES IN CALIFORNIA.

[Approved April 27, 1863.]

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. Any person producing or manufacturing any one of the articles or things named in the Act to which this Act is supplemental, in one fourth or one half the quantity named therein, and exhibiting the same in like manner and form, as specified in said Act, shall be entitled to one fourth or one half the premium (as the case may be) offered in said Act for the production or manufacture of said article or thing, to be awarded by the Board of Judges therein named, and in accordance with the provisions of said Act; *provided*, however, that no person shall receive a premium, under this Act, for any article or thing, in any given year, when a premium has been claimed and awarded for the same kind of article or thing in the same year under the Act to which this Act is supplemental, and claims for premiums under said Act shall not be prejudiced by claims under this.

SEC. 2. This Act shall be in effect from and after its passage.

STATE BOUNTY LAW.

Among the many Acts of comprehensive sagacity put on the statute book by the Legislature of our State, none is calculated to have a more beneficial effect in aiding the development of the various sources of wealth lying dormant throughout the length and breadth of the land, than the preceding law, which offers munificent bounties for the production of a great number of the articles most prominent in the wants of civilized life.

In looking over the list of articles comprised under the head of raw materials, it is seen that the law contemplates the production within the State of every valuable fibre raised upon the four quarters of the globe, as well as the growing of the three greatest luxury staples of everyday life—coffee, tea, and sugar.

The Legislature did not stop here. It also, in its unparalleled liberality, not only offered princely sums of money for the production of crude material, but it proposes such a largess of bounty to the skilful artisan and manufacturer as should insure the manipulation of this raw material, when grown, into the various implements, fabrics, and uses for which it is adapted. It is a cause for congratulation to the people of California, that under the stimulus afforded by the prospect of obtaining the large premiums offered, a number of articles largely in demand have been successfully produced, and their future supply rendered a matter of absolute certainty. That the production of some of the articles for which State premiums have been given this year were stimulated, if not directly induced, by the rewards offered, there is the most conclusive evidence to believe; and it is hoped that the law as it is may remain untouched by future Legislatures, except by adding to the present long list of articles for which premiums are offered many things overlooked at the time of its enactment.

Among new articles of manufacture which can be carried on to a greater magnitude in this State than in any other country, may be mentioned copper. Throughout the length of California, covering a distance of several hundred miles, with a width nearly equal to the average breadth of the State, there are being opened thousands of ledges of copper, many of which have already proved of extraordinary richness. At present, all the ores taken out are, by necessity, sent abroad to be

smelted, after a voyage consuming many months, and at heavy cost in freight. The establishment of smelting works, with machinery to manufacture the copper into sheathing metal, and other kinds of material suited to every kind of the mechanical arts, would give an impetus and value to our copper interests, which would add vastly to the productive wealth of the State. The Legislature may wisely offer a premium of ten or twenty thousand dollars for the production of a given quantity of sheathing copper, wire, bell metal, plate and bar copper, manufactured within the State from ores obtained in California, Oregon, or any of the adjacent Territories.

Again, was the production of bar or railroad iron encouraged by the offer of a munificent premium, it would not be long before our rich and exhaustless iron mines would save millions of dollars to the State.

Even were it made an object, by an offer of State bounty, the manufacture of lead pipe from the newly discovered exhaustless beds of galena found in California, should in no long time stop the importation of articles in the plumbers' line, which now are a vast item in our imports.

As one of the results of this law, there was exhibited for the first time at our Fairs, rosin, tar, and rectified spirits of turpentine, produced within the State. This branch of productive industry, springing suddenly into importance by the circumstance that the heretofore largest producing locality has become the theatre of devastating war, is obtaining such encouragement as to promise its successful continuance against any possible future competition. The number of pine trees now available for producing rosin along the foot hill districts of the Sierra Nevada Mountains is already sufficiently large to make this business one of great importance; and when the millions of young trees, springing up in dense thickets all along these slopes, shall in a few years be sufficiently large for tapping, there will be added to the present field of operations so large a supply, that the exportation of rosin and turpentine may become one of our large exports. National and State legislation is required to protect these young and invaluable forests from the wanton and inconsiderate vandalism of our present migratory population, as well as to prevent the unnecessary destruction of the trees from which the gum is now gathered by a reckless system of tapping. The value of this source of supply of a necessary article to a commercial marine, will be fully appreciated when the commerce of the Pacific, centering toward California, shall surpass in magnitude that of any other on the great highway of nations.

Favorable as is our climate to the most perfect development of animal and vegetable organism, it is no less favorable for the prosecution of those pursuits which claim the attention and means of our citizens in the development of our mines, fisheries, and transposing our magnificent forests of timber into every conceivable form which can render them useful to man. This favorableness of climate particularly applies to the extracting of pitch from the pine, the season here for this purpose extending through eight months of the year.

Hops, for which a large premium is offered, have already attained an extensive culture in the State, and although no one grower has produced the large amount of two hundred and fifty bales required to entitle him to the prize, yet there are those who pick from fifty to sixty bales in a season; and doubtless this lucrative branch of agriculture will very soon be entered into by individuals on so large a scale that this premium will be secured.

Of tobacco, it may well be said that no country of equal population is so large a consumer, nor its inhabitants more exacting in the selection of the choicest varieties, than are the people of California. Hence, a country which, after one or two seasons of experiment, has succeeded so well in the raising of unparalleled numbers of pounds to the space planted, will have no after difficulty in bringing the quality to the highest standard of excellence. In this article on the schedule of State bounty, there were several competitors for the awards of the State Board of Judges.

A ropewalk on an extensive scale has been in successful operation for several years in San Francisco, and as this gives a certain market for hemp, the day is not far distant when premiums for the latter will be claimed, as the extensive alluvial lands of the great interior valleys are well adapted to the growth of this valuable fibre.

Ales brewed and bottled in the State, suitable for shipment on any voyage at sea, have long been an article of extensive production in California; and there is every reason to hope that, with our unrivalled crops of barley and hops, all countries within the scope of the Pacific Ocean may before long get their supplies of ales and beers from our State.

Of cotton culture, but little can be said of an encouraging nature. The State offers of premiums for this fibre, however, have had the effect of instituting a great deal of newspaper discussion, and awakened attention to it to such an extent that numbers of enterprising citizens have made large experiments, with the hope of success.

Samples of silk cocoons, of "very superior excellence," to quote the report of the Silk Society of Paris, after they had examined samples sent to them from California for their opinion, have been repeatedly exhibited at our Fairs by an amateur silk grower of San José, Mons. L. Provost. Some time will elapse before the premiums on silk will be called for, solely because it will take time to grow the mulberry trees in sufficient quantity to feed the requisite number of worms to produce the cocoons. It may be stated, however, that one party has already in plantation three thousand trees, and proposes to very greatly extend it, so sanguine is he that silk culture is destined to become a lucrative branch of business in California.

Some of the premiums for the manufacture of boots and shoes were claimed this season, and as the tanning of leather has attained to great importance throughout the State, the time ought to be near at hand when the entire demand for boots and shoes should be met by home manufacture.

A portion of the premiums for printing paper were obtained by the Pioneer California Paper Mill. The premiums yet remaining open for competition for printing paper, to be made from other fibre or material than cotton, are inducing costly experiment with various substances to meet this demand.

The premium for the first one thousand dozen of glass wine bottles has already been claimed, and it is but justice to the enterprising projectors of the Pacific Glass Company to state that their works were not erected merely for experimental purposes. Their investments involved in the construction of buildings and appendages the outlay of nearly one hundred thousand dollars, and it is a gratification to be able to report that the owners are being generously repaid for their risks in this new undertaking.

The exhibit of woollen goods, in accordance with the terms of the State Bounty Law, was, perhaps, without disparagement to any other

branch of productive industry, the great feature of the State Fair; and under the encouragement of the munificent premiums already obtained, those yet remaining untaken in this line will be a powerful stimulant for the manufacturers to come with their unequalled fabrics to the next Fair, so as to carry off the prizes yet standing on the statute book as evidences of the liberality and wisdom of the law making power of our wonderful State.

ENTRY OF ARTICLES UNDER THE STATE BOUNTY LAW.

A. R. Jackson & W. S. Johnson, Sacramento County:
Ten acres of cotton, in bearing of good staple.

Hiram Tubbs, San Francisco:
Thirteen coils assorted rope, as samples of one hundred coils.

James Kile, San Joaquin County:
One bale of one hundred pounds of tobacco, sample of crop of eighteen hundred and sixty-three.

John Hart, Marysville:
Sample of rosin and spirits of turpentine.

Isaac Chase, Sacramento:
Samples of tar made in eighteen hundred and sixty-three.

J. W. Jacobson, Marysville:
Samples of rosin.

Thomas Edwards, Sacramento:
Samples of leaf and manufactured tobacco.

John Mason, San Francisco:
Samples of ale and porter.

Hucks & Lambert:
Samples of pitch.

E. & C. Gruhler, Sacramento:
Samples of beer.

J. C. Gibson, Forbestown:
Samples of rosin and spirits of turpentine.

Isaac Bird, San José:
Samples of leaf tobacco.

R. Gabriel:
Samples of manufactured tobacco.

Cook & Simonds, Marysville:
Samples of leaf tobacco.

J. S. Curtis, Yolo County:
Samples of leaf tobacco.

J. Dareburspeck, Empire City:
Samples of leaf tobacco.

John Taylor, Agent Pacific Glass Company, San Francisco:
Samples of two thousand dozen glass wine bottles.
Also, samples of carboys, jars, soda bottles, and assorted glass ware.

S. P. Taylor, Agent Pioneer Paper Mill, San Francisco:
Samples of one hundred reams of printing paper, made from cotton.
Also, samples of one thousand reams of printing paper, made from cotton.
Also, samples of a large variety of wrapping paper.

Nash & Fogg, Stockton:
Samples of boots and shoes.

Lazard Freres, Agents Mission Woollen Mills, San Francisco:
Seven varieties of flannel.
Five varieties of cloth.
Fourteen varieties of blankets.
Woollen drawers.
Woollen undershirts.

PREMIUMS AWARDED UNDER THE STATE BOUNTY LAW.

To Nash & Fogg, Stockton:	
For men's shoes	$125 00
For men's boots	125 00
To Pioneer Paper Mills, San Francisco:	
For first 1,000 reams printing paper, manufactured from cotton	1,000 00
For first 100 reams printing paper, manufactured from cotton	500 00
To Pacific Glass Company, San Francisco:	
For 1,000 dozen wine bottles	1,500 00
To Jackson & Johnson, Sacramento County:	
For first ten acres of cotton	1,000 00
To J. W. Jacobsen, Marysville:	
For first 1,000 gallons spirits of turpentine	500 00
For first 100 barrels rosin	300 00
For first 10 barrels rosin	150 00
To Thomas Edwards, Sacramento County:	
For first 100 bales tobacco	300 00
To Isaac Chase, Sacramento:	
For first 2½ barrels tar	50 00
To Mission Woollen Mills, San Francisco:	
For first 100 bales blankets, 40 pairs each, exported	1,000 00
For first 1000 pieces woollen cloth, exported	1,000 00
For first 250 pairs woollen drawers, exported	75 00
For first 250 pairs woollen undershirts, exported	75 00
Total premiums	$7,700 00

ANNUAL ADDRESS OF T. STARR KING.

You will not expect me, in this crowded hall, and in circumstances so unfavorable for quiet and deliberate attention, to offer you, even if I were competent, a lengthy or elaborate discussion of any question connected with agriculture. It would be wise if the arrangements of our Annual Fairs were such that an hour or two could be devoted, in a room apart from the attractions and excitement of the exhibition, to an analysis of the statistics of our production, or a thorough treatment, *by* farmers and *for* them, of some very important and prominent theory of interest connected with their calling. As it is, we come together rather to see and show what the State is doing, than to ask or learn what it *can* or *ought* to do. Governor Stanford, in his admirable address of Saturday night, has uttered enough wisdom connected with agriculture for one anniversary.

This is our "Feast of Tabernacles," our jubilee at the close of harvest, I trust not unconnected with gratitude for the infinite bounty from which the harvest flows. The call upon us for such gratitude is more impressive than to the early colonists of Palestine. Most of us have not been obliged to cross the wilderness to reach our Promised Land. Nor have we been compelled to fight for our possession. We have been floated to it on a peaceful sea, and the gate was cloven for our entrance, and noble rivers fed by everlasting snow—"whose foam is amber, and their gravel gold"—invited us to easy dominion of the interior plains.

Suppose we were called to name on all the globe, to-day, the community of four hundred thousand persons most favorably placed, so far as domain and prosperity and prospects are concerned. Let a man turn the globe with compasses in his hand, and hold them suspended, and deliberate as long as he may, I defy him to fix the point at any other place than Sacramento—right here at Agricultural Hall—so that the sweep shall include the four hundred thousand souls within the jurisdiction of this society. What other portion of the earth held by one organization of less than half a million will compare in privilege, resources, and hopes with the portion of this young, beloved Benjamin of American States, whose autumn-sack is now stuffed with grain, while the mouth of it contains a cup of gold? A line on the Atlantic coast, representing the length of our State, would run from Boston below Chesapeake Bay, below Cape Hatteras, below the batteries of Gilmore on Cummings Point, to the harbor of Port Royal. And nearly the whole

of the area with this vast water front is one symmetrical domain, by reason of the mountains that uprear their five hundred miles of jagged whiteness in its background; the rivers that flow from the northward and the southward, fed from those snowy springs, to unite in the centre of the State; and the Bay that receives their volume, rivalling in its conformation the Bay of Naples. Where else has the Almighty delivered to half a million of people such a line of eternal snow looking down upon such opulent plains? Where else such a fellowship of temperate and tropic climates? Where else such rainless summers, which turn droughts into harvests? Where else gold in the rocks, and, bending over the mills that crush them, peaches that mock the apples of gold in the Garden of the Hesperides? Where else such sweeps of wheat, such armies of noble cattle on a thousand hills, such bloom of vineyards; and beneath all, such variety of mineral wealth, which only centuries to come can tap and drain? Where else has the Almighty connected such social blessings with material good—freedom, intelligence, schools, multiplying churches, and loyalty—deliberate-principled, unconditional, invincible loyalty to the Government, and the policy, the freest, the noblest, the worthiest beneath the sun?

I do not say this, gentlemen, in boasting. It is only the honest generalization of the map of California, and of the facts which your exhibition presents to our eyes this week. In privilege of position, and in regard to resources and the future, the State of California, in the American Republic, is the most favored spot which this globe turns to the sun.

And it is not the spirit of boasting which the facts, properly appreciated, will awaken. This soil and these treasures are a trust. They are offered to us as the condition of stable wealth and a rich civilization. But they do not pledge and guarantee that wealth and civilization. Our mineral treasures, if we export them to pay for imported necessities and luxuries of existence, will give fortune to the brokers that manage the transfer, but will not enrich the State. Civilization will shrivel around the very sources of gold. And if we hoard the gold itself, it will not enrich us. Our prosperity and progress will depend on the variety of industrial interests developed in the State, so that a large percentage of our bullion shall be kept in motion here, and the soil retain its present fertility and bounty.

Do you ask now how the fertility of the soil is or can be affected by variety of industry in a State? It is of the last necessity that every prominent agriculturist and every man of influence in the policy of a rising State should see the connection, and act upon it, in order to befriend civilization.

Nothing is so remarkable, perhaps, in the advance of knowledge within this century, as the new light thrown upon the farmer's duty and office. All labor has risen in dignity and value; but the science of the last fifty years has raised the culture of the soil into the most noble of the arts to which man can devote himself—the one requiring the most varied knowledge, and the one which is most difficult to keep, year in and year out, at a very high level of success. To plant a grain of wheat, and see it bring forth thirty or sixty fold, seems a very simple thing. How, in such a business as that, is there room for a high display of intelligence? How can any body say that the planting of a wheat field, and the reaping of it, is a high and difficult art? But begin to study the relations of one wheat blade to the forces and laws of nature, and see

what a track you are on, and what begins to open before you. It will be impossible for you to master it without winding into the central mysteries of chemistry, without comprehending the most intricate balances of meteorology, fathoming the splendid and complicate marvels of light; without understanding the beneficence of the changes of seasons, and the dependence of the earth on the despotic benignity of the sun. Modern chemistry has made every grain field the scene of bewitching and orderly miracle. And when the farmer begins to study the relations of all other seeds to their products—to follow the processes by which a squash-germ so speedily prepares and feeds its mighty globes, and the acorn develops into its slowly compacted sturdiness, and the bitter peach stone, with its poison, builds the twigs that nourish such nectar, and the little flake shaken out from the small pine cone in Calaveras becomes competent to rear its column thirty feet at the base and three hundred feet in the air—the moment he begins to study the variety in the vitality of seeds, a magic is opened to him more powerful, more subtle, more delicate, more entrancing, than the story in the Arabian Nights of the giant that rose in mist and took solid shape out of the little earthern jar. The "Grizzly Giant" of Mariposa is mostly built of water. Its thews are compacted out of exhalations. It is steam transmuted into hundreds of tons of timber, defying for two thousand years the force of gravitation—steam, knotted into substance older than the English Empire, by the persuasion of a filmy seed and the delicate fingers of light.

Something of these processes, something of this poetry, every farmer must know who would be master of his calling. He must know what are the relations of soil, and air, and moisture, to the growth of his products; what food the soil itself furnishes to each vegetable, each fruit tree, each vine, each species of grain; what are the habits, and the needs, and the exposures to disease of each berry, root, or leaf, from which he expects his profit; and what elements must be returned to the land to compensate the waste of its bounty, and thus secure his capital intact.

It is in relation to this last point that the deeper science, and the nobler dignity, and the immense responsibility of agriculture, rise into notice. The wheat field, studied in one season, supplies vast knowledge and entrancing poetry. To keep the wheat field productive for thirty years in succession, requires very careful study of the land, intimate knowledge of the relations of its mineral composition to the structure of the wheat stalk and seed, and an economy that is wise from root to crown. Ordinary labor the most faithful, the most temperate, the most devoted, with the most elaborate implements of tillage and reaping which modern skill has devised, cannot keep a grain farm whose crops are exported productive at a high level for a generation. There must be knowledge, accurate and thoroughly digested knowledge, to superintend the most conscientious labor, knowledge which accepts and treats the farm as a trust.

The Creator who gave the globe to Adam, with the command to dress it and keep it, has connected economy with its fertility. Economy lies at the base of high and permanent civilization. Where a river rises every year, overflows its banks, and renews the elements which the land has expended into crops, men are absolved from the duty and the need of caring for the soil. God takes the capital into his own keeping, and notifies man that he will prevent its waste. But where this is not done, men are notified, just as plainly, that they must repair the capital and preserve it at a point where the returns will be generous and perpetual.

The interests of the human race repose on agriculture, and agriculture reposes on this law. To fulfil it requires immense knowledge, and a reverent and persistent thrift. The farmer that understands it and acts upon it, stands at the head of all workers on the planet.

We know very well that decay in the productiveness of the soil through false methods of tillage, wrought the ruin of some of the immense empires of antiquity; and the best students of agriculture as a science are warning the world that there is scarcely a nation in Christendom now that can show a proper balance sheet at the end of each generation, drawn from the great ledger of its land. Some students say, that as a system, the general tillage of Europe is a process of slow but sure exhaustion. Either care is not taken to enrich the land, or, through lack of science, the proper elements are not returned in the enriching material.

How is it in America? God has given us a fresh and fertile continent. We boast of its opulence. That, however, is a gift to us. Can we boast of our relation to its opulence? One of our counts in the great indictment against slavery is, that it sucks the juices out of the soil, that it blasts the landscape, that it finds a garden and leaves behind it a nettle bed. We point to the farms of Eastern Virginia, of North Carolina, of Western Tennessee, whose bounty has shrivelled, for our proof and illustration. And it is true. Barbarism in the tillage leaves barbarism on the face of nature. Slavery, except on river bottoms, quickly "skins the land." But can we boast much of what American agriculture in the free States has accomplished as yet? The statistics of Chicago and Buffalo are astonishing; the export bills of lading of the last two years are peculiarly refreshing when we place them in connection with our war. But what is the relation of our garnering to our capital? What are McCormick's reapers, and the patent threshers, and the tireless muscles of the steam plough leaving behind them, year after year, in the immense area they sweep? The average fertility of New York State in wheat has fallen fifty per cent since the first wheat crop was gathered. Ohio has been steadily falling behind in the amount she can produce to the acre; and tens of thousands move off from Indiana and Illinois, still further west, in order to enjoy the bounties which they had seen decrease around them, of a strong and unwrought soil.

By a rate slower than that of the upper tier of slave States, and yet by a rate that may be measured, the great grain districts of our country are drawing from the treasury of nature without repayment. When a mining company pays dividends out of its capital, and not out of its earnings, the press rings with denunciations of the swindle. And righteously. And we must soon come to consider the peril, if we will not now stop to consider the honesty, of discounting our capital into our immense harvests. If you give an Indian in Australia a cottage furnished, he will call some Indians of his tribe to the cottage grounds, sleep outside the roof, bring out the furniture, piece by piece, and burn it for evening fires, then burn the house down, and wander off in the hope that another cottage may soon be given to him. Agriculture that wastes capital is an improvement on this method of enjoying property only according to the difference of *rate* in the destruction of its trust. Instead of using nature, it uses it up.

The waste of the most careful civilized nations in relation to their agriculture is astonishing. England stands at the head of European States in her care and success in the tillage of her soil. But think of the sewerage of London! Where does it go? Into the Thames. The sickness which a few years ago was generated from that river, and the

pictures in "Punch" of the spirits that rose from its bed, indicate something of the woe and horror of this folly. There is productive power enough in it, if conducted to the land, to feed all the poor of London. Have you read in one of the volumes of "Les Miserables," Victor Hugo's description of the sewer of Paris, and his reflections on it? He tells his countrymen that all that filth is gold, and that they sweep it into the abyss. We fit out convoys of ships at great expense to gather up at the South pole the droppings of petrels and penguins, and the incalculable element of wealth which we have under our own hand we send to the sea. All the human and animal manure which the world loses, restored to the land, instead of being thrown into the water, would suffice to nourish the world. These heaps of garbage at the corners of the stone blocks, these tumbrils of mire jolting through the streets at night, these horrid scavengers' carts, these fœtid streams of subterranean slime which the pavement hides from you, do you not know what all this is? It is the flowering meadow; it is the green grass; it is marjoram, and thyme, and sage; it is game; it is cattle; it is the satisfied low of huge oxen at evening; it is perfumed hay; it is golden corn; it is bread on your table; it is warm blood in your veins; it is health, it is joy, it is life. Thus wills that mysterious creation which is transformation upon earth, and transformation in heaven.

The English are now fighting Japan. Some of our citizens are eager, I find, that there shall be a regular, open, legitimate rupture between the Tycoon and the English Government, in which our Republic shall not get involved. They want to see Japan recognized by our Cabinet as a belligerent. And then, with the help of a score or two of privateers, built in American ship yards for our dusky neighbors in the Pacific, they want to see America *strictly neutral* in the contest. If England breaks into Japan and conquers it, there is one thing in which the half-civilized Mongolians can defy their civilized foe to instruct them—the great art of keeping the soil fertile steadily for centuries. Japan is about as large as England and Ireland combined. So much of its area is hilly that hardly more than half is fit for tillage. Great Britain imports food from other countries to the extent of many millions annually. But Japan supports a larger population than England and Ireland. She exports grain now to foreign countries. She maintains the richness of her soil, and has kept it at a high and even rate of productiveness through centuries that stretch back beyond the decay of Greece, beyond the birth of Rome, to the days of Solomon—possibly to the age of Moses. She has done it by careful obedience to the laws of restoration which God has written in the soil. She treats the soil as a factory. Wanting cloth from it, she gives the woof out of which the cloth is woven. She finds that nature will toil for man forever, if man will give her the elements for her miracles. She reverently offers to the wand of Providence the filth of cities, that it may be transmuted into flowers and bread. The civilized world is now waiting for some method by which the sewerage of its great capitals and towns can be deodorized and concentrated into solid form, in order that agriculture may advance another stage, and give promise of a perpetual permanence of "seed to the sower and bread to the eater"—that is, give an unyielding basis to civilization.

California will prove no exception to the general law of nature which enforces economy toward the soil. Our land is rich, but its richness is a limited quantity, and after a few years will show the symptoms of too severe a draft upon its generosity. The Creator does not increase its fatness by the yearly silt of overflow. He gives it to us as a trust, and

if we do not try to pass it over to our children with but little reduction of its vitality, we are simply squandering our capital in our great harvests now, and mortgaging also the patrimony of posterity.

And in order to keep the soil rich, we need varied industry in our State. Very distant markets for grain, and beef, and wool, though the prices may enrich the farmers and merchants of the first twenty years, will inevitably impoverish the bank which pays out its guineas in the disguise of corn and cattle. The far distant market allows no return of food to the hungry globe. To keep up the agricultural opulence of a State, there must be active home markets—markets demanding a large variety of farm produce—centres of cunning industry, from the waste and leavings of whose consumption the return of needed material may be quickly made to the fields. The only safe foreign market, in the long run, is that which takes from a State the natural excess of its production after the main interests and activities of civilized industry are supplied on its own soil. And no foreign market is safe if there is not rigid economy of all the native sewerage, and, beyond that, an import of some concentrated manure to renew to the ground the organic elements exported from the farms.

Here is the reason why agriculture cannot be wise and perfect without a just organization of society. A savage tribe on the wealthiest land will wring out only a squalid subsistence. Some wisdom in tillage is necessary to start civilization; and then proper diversity of industry and activity of movement in civilization itself are essential, that there may be a quick absorption of a large percentage of natural products, and a sure return of prolific elements to the strained bounty of the fields.

The difficulty we meet in keeping agriculture at a high and affluent level is an index of its dignity. The Creator shows us thus that it is the crowning triumph of human genius and of social organization, as well as the foundation interest of man. Be proud of your office and position, farmers of California! Accept your duty with a sense of its wide relations and its nobleness. God makes no perfect apple. He makes the possibility of it, whispers the dream of it into some ambitious farmer's mind, and lends him the forces of Omnipotence to shape and fill it. He produces no short-horned Durham, no high-blood racers, no exquisite Suffolk pigling, no Merino sheep. He rears the coarser blood and bones, the framework of these admirable victories in flesh and sinew, and tempts the farmer on to conjure them into reality and thus adorn the world. He spreads no prairies that will glow with golden wheat forever, but through science shows the farmer how to renew the wasting treasury of the soil, that he may learn to build up society in learning how to rejuvenate his land.

Keep in view this co-operation of your calling with the thought and art of Omniscience, the crowning glory of the farmer's work. Study to understand more and more, every year, of the principles that lie at the base of your business. Be sure that you subscribe for the agricultural journals of the State you live in. The only way to be sure, that I can suggest, is to look carefully, when you know that you are wide awake, at the receipted bill. Buy such books as that most suggestive and able volume, lately printed in America, and on sale in California, "The Natural Laws of Husbandry," by the German Professor, Liebig. It is worth a good deal more than its weight in gold to every large farmer—so that you will make a very handsome sum in buying it. It will pay better than average "feet." Study carefully the published statistics of the dis-

trict societies and the State central organization, and labor to keep up their usefulness and efficiency. Take pride in the eminence and success of the representatives of your calling. A great artist paints a landscape of a few feet square, and raises the character of a whole community by his genius. Haraszthy turns a township into a beautiful landscape, and the honor and fame of it travel beyond the Alps, and further than the eastern bounds of the Mediterranean. And what shall I say of him whose murder was a stab at the interests of California, from Mount Shasta to San Diego, the full-brained, nimble-thoughted, large-hearted Osborne, the farmer-philosopher and poet? A man like him is worth more to California than an Ophir mine, for it is especially true in agriculture that "the price of wisdom is above rubies." We pronounce his eulogy, and that of the science he had so nearly mastered, in saying that there is hardly another man in California whom we could not have more readily spared. And strive to learn the lesson which he was never weary in enforcing—that the industry of the State must be broadened and diversified for the sake of farmers and the future. The State has offered noble premiums for hemp, flax, tobacco, sorghum sugar, tea, raw silk, paper, rosin, wine bottles, rice, and cotton. When shall we see them earned? No hundred thousand dollars can be so wisely spent as those which shall show that all the premiums for agricultural and manufactured products, offered by the last Legislature, are won. Those dollars will not be spent, but planted, to spring up a hundred fold. Heaven hasten the day when the warrant shall be drawn on the Treasury for every cent of that noble bounty! Hemp we shall soon need soon, I hope—American hemp—for American consumption in *high* places. The queenly flax we need to dethrone King Cotton, and give us a clean-linen civilization. Silk from our own looms we pray for, to make us more independent of foreign mills. Native sugar we want to sweeten the cup of our immense national prosperity that is near at hand. Good wine of our own vintage shall be poured into the goblets that will pledge the restored old flag in all the infected districts of rebellion. Cotton from free labor we long to see floating into the markets of Europe, as the sign and guarantee of an America homogeneous in its polity henceforth and forever. And then we shall be ready to select some good California tobacco, and offer, under the Stars and Stripes, to smoke the pipe of peace with all the world.

LIST OF ENTRIES AT THE FAIR OF 1863.

HORSE DEPARTMENT.

Nathan Coombs, Napa County:
"Ashland," stallion, over four years old.
" Montezuma," stallion, over three years old.
" Fanny Brier," mare, over three years old.
" Tarantula," mare, over one year old.
" Davy Crockett," stallion, over four years old.

J. A. Price, Yolo County:
" Lizzie Dale," mare, over four years old.

V. Barnes, Yolo County:
" Sea Breeze," colt, over one year old.
" Didapper," stallion.

J. B. Redman, Marin County:
" Fairy Queen," mare, over four years old.
" Life Boat," mare, over four years old.
" Knight St. Patrick," colt.
" Mainstay," over four years old.

Schlostines, Sacramento:
Two colts, over one year old.

C. F. Reed, Yolo County:
" Black Eagle," over four years old.
" Norma," mare.
" Empress," mare.
" Amanda Wallace," mare.
" Sallie Miller," over one year old.
" Lizzie Curtis," over four years old.

G. G. Clark, Sacramento:
" Doctor Clark," over one year old.
" Fanny," mare.

Samuel Dodd, Placer County:
" Young Walter," stallion, over three years old.

S. Dunbar, Sacramento:
"Cub," gelding, over eight years old.

M. Sprague, Sacramento:
"Abe Lincoln," over three years old.

L. D. Manor, Yolo County:
"Tom Corwin," over five years old.

A. F. Smith, Sacramento:
"Sailor Boy," over three years old.
"Young Lancet," over one year old.
"Young Lightfoot," over one year old.
"Prince Albert," over two years old.
"Charlie," gelding.
"Flora."

William Osburn, Placer County:
"Young Diamond," over nine years old.

William H. Prentiss, Sacramento:
"Lady Nelson," over two years old.
"Frank Nelson," over one year old.

Joseph Bauquier, Sacramento:
"Missouri Chief."
"Consternation," stallion.
"Dolly" and colt.
"Kate."

J. A. Burke, Sacramento:
"Grog," over six years old.

J. D. Osborn, Sacramento:
"Peacock," stallion, over three years old.

D. E. Knight, Yuba County:
"Bill McCracken."

James Haworth, Yuba County:
"Lady Dillon," over three years old.

C. H. Shear, San Francisco:
"Captain Hanford," over five years old.
"Flora McDonald," over four years old.
"Alicia Mandeville," over three years old.
"David C. Broderick," over three years old.

Charles St. Louis:
"Tom and Jim Duroc."

H. Wilson, Sonoma County:
"Young America," stallion.

E. R. Perrin, Sacramento:
"John Nelson, Jr.," yearling.

M. Lowell, Sacramento:
"John Nelson," stallion.

D. H. Trinder, Yolo County :
" Kate Simmons."
" Ann Richards," over three years old.
" Fanny Cheatham," over two years old.

Edward St. Louis, Yolo County :
" Red Bird," over two years old.
" Fanny" and colt.

Charles Kidder, Sacramento :
" Young Butler," over four years old.

B. E. Harris, Sacramento :
" Jack Clifford."
" Lady Hobbs."
" Bill and Jake."
" Toney Oaks."
Matched Carriage.
" Dandy."

A. W. Dunnigan, Yolo County :
" Tom Thumb."
" Stranger," over four years old.

John Kelly, San Francisco :
" Fanny Lent."

Labousier, Yolo County :
" Rosalie."
" Katy Hawkins."

William M. Allen, Solano County :
" Young Chrysopolis," over three years old.
" Battalion," over four years old.

William Ledgerwood, Solano County :
" Puss Goldfinder," over five years old.
" Pat Cheatham," over three years old.

D. B. Sutton, Yolo County :
" Robert Dale Owen," over four years old.

Benjamin Tibbits, Sacramento :
" Eclipse," over one year old.

J. G. McCracken, Sacramento :
" David Hill."
" Lancet," over four years old.
" Fanny."

B. Cahoon, Sacramento :
" Garibaldi."
Colt, over two years old.
" Fanny Maria Kimble," over two years old.
" Gilmore," over one year old.

A. G. Leatchman, El Dorado County :
" Lexington," over six years old.

J. M. Hubbard, Sacramento :
"Dusty Bill."

John Arnold, Sacramento :
"Belle of Sacramento."
"Peerless Queen."

R. S. Cary, Yolo County :
"Young Gilbert."

C. H. Burger, Sonoma County :
"Pilot Boy," over three years old.

F. O. Townsend, Napa County :
"Leopold," over three years old.

C. W. Fairchilds, Amador County :
"Black Hawk," stallion, over three years old.
"Shakspeare," stallion.

J. Sutherland, Amador County :
"Blucher," stallion, over three years old.

G. W. Grayson, Tehama County :
"Harkaway," stallion, over four years old.

E. Chamberlain, Solano County :
"Flying Morgan."
"Cosmo."
"Starlight," mare.

James Miller, Sacramento :
"Lucy and Naney."

John Hall, Alameda County :
"Owen Dale," stallion.
"Gladiator," stallion.
"California," stallion, over three years old.
"Esperanza," mare, over three years old.
"Bay Bob," stallion.

J. W. Richmond, Sacramento :
"Queen" and colt.
"Mary Walker," over one year old.

J. B. Harbin, Yolo County :
"Traveller," over four years old.
"Tiger Whip," over three years old.

W. A. Mathews, Santa Clara :
"Joseph," stallion.
"Wm. I. Ferguson," stallion, over three years old.
"Nellie Hall and Jennie Hollister," over three years old.

M. Fay, Sacramento :
"Mary Jane," over two years old.

Robert Watt, Nevada :
"Honest Ance."

D. Dennister, Nevada :
"Bob Cole."

Barney Rice, San Francisco :
"Jim Barton."

George N. Ferguson, San Francisco :
"Glencoe Chief."

John Fitzsimmons, Sacramento :
"George Moore."

A. N. Fisher, Stockton :
"Chieftain," over six years old.

J. C. Davis, Yolo County :
"Lady Rotan," and family.
"Billy Shears," over four years old.
"Lady Shears," over three years old.
"Chuckahilo," over two years old.
"Minnehaha," over one year old.
"Lady Wolfskill," over two years old.
"Mary A. Davis," over two years old.
"Lizzie Wolfskill," over one year old.
"J. C. Davis," over one year old.
"Molly Brooks," over six months old.
"Johnny Wolfskill," over six months old.
"Antelope," over six months old.

Mike Bryte, Yolo County :
"Nick," over two years old.
Yearling colt.
Sucking colt.
"Anna," mare.

J. M. Garoutte, Yolo County :
"Young Gray Eagle," stallion.

Ed. Bean, Sacramento :
"Lady Duroc," over five years old.

J. C. Davis, Yolo County :
"Rose Clifton."
"Milton S. Latham," yearling.
"Billy Clifton," over four years old.
"Lady Clifton," over three years old.
"Jim Bigart," over two years old.
"David C. Broderick," over one year old.

E. M. Skaggs, Sacramento :
"Rattler, Jr.," over four years old.

Thomas Maguire, San Francisco :
"Abby Woods."

Josiah Sessions, San Francisco :
"Diamond."

A. F. Grigsby, Napa County:
"Volcian."

C. H. Berger, Napa County:
"Molly Higby."

William B. Campbell, Sutter County:
"Young Lightning."

W. W. Burdett, San Francisco:
"Dare Devil."

Cyrus Barnes, Yolo County:
"Heenan."

W. K. Reed, San Joaquin County:
Matched carriage horses.

R. L. Ogden, San Francisco:
Matched carriage horses.

Thomas Maguire, San Francisco:
Matched carriage horses.

J. R. Crandall, Placer County:
Matched pacers.

J. R. Whitney, San Francisco:
Matched trotters.

Barney Rice, San Francisco:
"W. H. Seward."

Jack Kelly, San Francisco:
"Gen. Taylor."

Mr. Dewey, Santa Clara County
"Kentucky Hunter."

S. Daniels, Sonoma County:
"California Chief," stallion.

CATTLE DEPARTMENT.

Thomas Bedford, Colusa County:
"Shasta," bull, over five years old.

Torney & Fagan, Napa County:
"Herald the Sixth."

Milton Dale, Yolo County:
"Rosa," over two years old.
"Dixie," over one year old.
"Roland and Tom," under one year old.
"Verona."
"Mary Jane."

J. D. Patterson, Alameda County :
"Duke of Airdrie," over three years old.
"Devon Duke."
Alderney "Albert."
Alderney heifer "Diana."
"Jerseyman," calf.

George Chase, Santa Clara County :
"Grand Turk," bull, over three years old.

S. Daniels, Sonoma County :
"Medoc," Devon bull, over four years old.
"Calf," Devon.
"Pacific," Devon bull, over three years old.
"Oakland," Devon bull, over one year old.
"Fashion," Devon cow, over four years old.
"Lassie," Devon cow, over four years old.
"May Queen," cow, over three years old.
"Beauty," cow, over three years old.
"Maud," cow, over two years old.
Two Devon heifers, over one year old.
"Wattie," Ayrshire.
"Nina," heifer.

J. C. Davis, Yolo County :
"Comet," bull.
"California Belle," cow.
"Anna Stevenson," yearling.
"Red Rose" and calf.
"Bracelet," cow.
"Joe," bull.
"Red Jacket," bull.
"Lily," cow.
"Snow Bell," cow.
"Julia," cow, two years old.
"Lizzie," cow, one year old.
"Mary."

Clark & Cox, Placer County :
"George," bull, over three years old.

MULE DEPARTMENT.

R. Y. McElroy :
"Stephen A. Douglas," jack.

Thomas Edwards, Sacramento :
"Lady Franklin," jenny.
"Lady Washington," jenny.

R. B. Carey, Yolo County :
Pair mules.

J. C. Davis, Yolo County :
"Black Warrior," jack.

SHEEP DEPARTMENT.

McConnell & Curtis, Sacramento County:
Eight Spanish merino bucks.
Five Spanish merino ewes.
Five Spanish merino buck lambs.
Two Spanish merinos, two years old.
Ten ewes, graded, two years old.

Bachelder & Cotter, Sacramento County:
Two Spanish merino bucks, four years old.
One Spanish merino buck lamb.
Four Spanish merino ewes.
Nine half breeds.
Five buck lambs.

J. B. Hoyt, Solano County:
Five ewes, two years old.
Five ewes, one year old.
Five ewe lambs.

J. D. Patterson, Alameda County:
"Excelsior," French merino ram, two years old.
"Emperor," French merino ram, two years old.
"Napoleon the Fourth," French merino ram.
Two French merino rams.
Four Vermont French merino rams, two years old.
"Don," Spanish merino ram, two years old.
"Pedro," Spanish merino ram, two years old.
"Bishop," Spanish merino ram, two years old.
Two Spanish merino rams, two years old.
Six Spanish merino rams, three years old.
"Jonas Webb," Southdown ram, two years old.
"York," Cotswold, two years old.

J. C. Davis, Yolo County:
Six Cotswold ewes.
Two Southdown lambs.
Two Leicestershire ewes.

POULTRY DEPARTMENT.

Richard Thompson, Placer County:
Two black Spanish roosters.
Two black Spanish hens.

H. S. Beals, Sacramento County:
Coop Japanese fowls.

C. S. Lowell, Sacramento County:
Two coops black Spanish.

Miss Minnie E. Hoag:
Coop Sumatra chickens.

SWINE DEPARTMENT.

Thomas Edwards, Sacramento County:
One Essex boar, seven months old.
One Essex sow, seven months old.

J. S. Curtis, Yolo County:
One Westphalia sow, two years old.

FARM PRODUCTS ENTRY.

In this department of the exhibition the entries were very meagre, and there was scarcely any competition worthy of the farmers of California. There were articles, however, entered under the above caption which afford evidence that our State is constantly adding to her list of products valuable in the demands of commerce, and prominent among these articles may be named hops, raisins, and prunes, the two latter items of which have been referred to under the head of Fruit Department.

No other country in the world can excel our State in the production of hops. The season being long, there is no danger from premature frost; and as there is an entire absence of rains from the time the hop goes into blossom until the strobels are ripe for picking, there is neither mildew nor blight to be dreaded, and no part of the resin secreted in the strobels is lost, as happens in rainy countries, by its being washed out during violent storms of wind and rain. Brewers attest that one pound of well cured California hops is equal in strength to two and sometimes three pounds of those imported from countries subject to rain storms during the ripening and gathering season. The hop culture should be largely entered into all along our extensive river bottoms, as there would grow up a home demand on account of our having a superior article of barley for brewing purposes. The markets for strong beer and ales within the circuit of the Pacific Ocean and the Chinese Seas should induce the establishment of extensive breweries in California.

Among the exhibit of dried fruits were many samples of figs, in such a perfect state of preservation as to encourage the development of this branch of productive industry beyond the mere matter of experiment.

In the list of new articles of California industry, making its appearance for the first time this season, was manufactured tobacco. Extensive fields of this plant have been successfully grown in various parts of the State, and its future cultivation is destined to occupy an important share of the attention of our farmers. Thus far the effort seems to be to produce the greatest amount of pounds to the acre; this is at the expense of quality. A remedy, however, will be found in planting on thinner, poorer soils. There are vast sections of land throughout the State almost worthless for any other purpose than tobacco culture by reason of an excess of alkalies, but which will grow this plant in great perfection. Experiments indicate that the leaf of plants grown on alkali soils is tougher than those raised on a rich vegetable deposit nearly free

from alkaline elements. Much difficulty has been experienced among tobacco growers in the proper curing of their crops. This climate being entirely different from that of the Atlantic States, the same modes of preparation for market have not met with that success which is desirable. This, however, will be remedied by continued experiment.

In dairy produce the exhibition was deficient to a mortifying degree, considering that this is the greatest stock country in the world, compared with its population. During the past two years, butter from the Atlantic States has been thrown upon our markets in enormous quantities. This being a cash article, shippers in the East have been enabled to purchase in their markets with paper currency and sell in ours for gold, and get results by return steamer. Sales were made in San Francisco at less than the invoice cost in New York, yet shippers realized satisfactory profits by the difference in exchange. This was a competition which resulted disastrously to our dairymen, so that many herds of milch cows have been turned out for stock-breeding. This is only one of the many industrial interests which were rapidly growing into importance before the disastrous effects of this unnatural condition of exchange took place, which have been ruinously affected by its operation.

EXHIBITORS IN THE FARM PRODUCE DEPARTMENT.

B. H. Hoag, Napa:
One case of honey.

J. S. Harbison, Sacramento:
One case of honey.

J. R. Nickirson, Placer County:
One sample of lard.
One sample of honey.
One sample of buckwheat.
One sample of bacon.
One sample of hams.
Sample of sweet potatoes.
Sample of peas.
Sample of garden seeds.
Four varieties of raisins.
Four varieties of dried figs.
Five varieties of dried peaches.
Four varieties of dried pears.
Four varieties of dried apples.
Four varieties of dried plums.
Two varieties of dried prunes.
Three varieties of dried nectarines.
Three varieties of dried apricots.
Five jars of preserves.
Four jars of can fruits.
One jar of jelly.
One jar of brandy peaches.

J. Phillips, Sacramento:
One pyramid of confectionery.
One case of confectionery.

Miss M. C. Burns, Sacramento :
One sample of bread.

J. M. Griswold :
Bread from Unfermented Bread Company, San Francisco.

Miss Isadore King, Sacramento :
Sample of bread.

Stockton & Coover, Folsom :
Sample of flour.
Sample of corn meal.
Sample of rye flour.
Sample of hominy.
Sample of pearl barley.

E. M. Smith, Folsom :
Sample of soda crackers.

John Smith, Sacramento :
Sample of bread.

George McKee, Sacramento :
Sample of bread.

Miss M. E. Burns, (aged eleven years,) Sacramento :
Sample of butter.

Miss Nellie Sprague, (under eighteen years) :
Sample of butter.

E. M. Smith, Folsom :
Sample of butter.

Mrs. M. Dale, Knight's Landing :
Sample of butter.

Mrs. E. F. Aikin, Sacramento :
Sample of butter.

Frink & Allsop, Sacramento :
Sample of butter.
Exhibit of cheese.

George E. Coggshall :
Samples of Carolina sweet potatoes.
Samples of Irish potatoes.
Samples of watermelons.
Samples of muskmelons.
Samples of egg-plant.
Samples of turnips.
Samples of beets.
Samples of carrots.
Samples of cabbages.
Samples of tomatoes.

C. G. Hidden :
Samples of summer squashes.

C. G. Hidden:
One bale of hops.
Samples of sweet potatoes.

P. Nolan, Sacramento River:
Exhibit of onions.
Exhibit of sweet potatoes.

A. Palm, Sacramento:
One squash.

Joseph Kile, Woodbridge, San Joaquin County:
Samples and bale of tobacco.

George Cone, Sacramento:
Two squashes.
Samples of beets.
Samples of corn.

M. Sprague, Sacramento:
Sample of squashes.

Thomas Edwards, Sacramento:
Samples of pumpkins.
Samples of squashes.
Samples of carrots.
Samples of leaf and manufactured tobacco.

E. Pierce, Sacramento:
Samples of corn.

R. Gabriel, San José:
Sample of manufactured tobacco.

Thomas Milgate, Sacramento:
Twelve varieties of squashes.
Five varieties of beets.
Two varieties of tomatoes.
One variety of carrots.
Twenty-four varieties of corn.
One bushel of beans.

J. S. Curtis, Yolo:
One lot of peanuts.
Sample of tobacco.

D. McGowen, Yolo:
Sample of peanuts.
Sample of cabbages.
Sample of tomatoes.

T. Woodward, Sacramento:
Sample of tobacco.

Mark Hopkins, Sacramento:
Sample of blood beets.

Jesse Morrill:
Samples of tobacco.

G. G. Morgan, Sacramento:
Sample of beets.
Sample of squashes.

Isaac Bird, San José:
Samples of potatoes.
Samples of tobacco.

Charles Heinrich, Sacramento:
Sample of Bohemian hops.

S. Stata, Sacramento:
One bale of hops.

John Adamson, Solano:
Sample of wheat.

B. N. Bugbey, Folsom:
Sample of raisins.

Miss M. H. Crocker, Sacramento:
Five jars of jelly.
An assortment of dried fruits and preserves.

Mrs. N. L. Drew, Sacramento:
One dozen of can fruits.
Two jars of pickles.
Samples of catsup and brandy fruits.

Miss M. E. Drew, Sacramento:
One drum of figs.

A. Bergeman, Sacramento:
Two bottles of pickles.

Dr. John Strentzel, Martinez:
Five varieties of raisins.

Mrs. A. C. Sweetzer, Sacramento:
Sample of dried figs.

Mrs. J. H. Hoag, Sacramento:
Five drums of figs.

Mrs. I. N. Hoag, Yolo County:
One sample of dried figs.
One sample of jelly.

Mrs. E. B. Crocker, Sacramento:
Nine varieties of dried fruits.
Five varieties of pickles.

WINE DEPARTMENT.

In no other department of the exhibition was there so much competition, or a more deep and friendly rivalry, than was manifested between the various competing wine growers.

There were twelve exhibitors of wine and brandy, whose schedules covered a list of seventy-six competing kinds, which were the product of a great number of localities widely separated by distance, and equally distinct in the character of the soil on which it was produced, as well as in phenomena of climate, altitude above the sea level, and exposure of the location where the grapes grew from which the wines were made.

These wines also were the product of many different varieties of grapes, and some of them of kinds heretofore recognized as only fit for the dessert, but now for the first time appearing for public favor in the form of wine.

It was exceedingly unfortunate that the Committee of Judges were unable to meet at an earlier day of the Fair, because, in the short time allowed them for their examinations it was next to an impossibility for them to make such critical tests as were required, so that they could make such awards as would do justice to themselves as Judges, and to the exhibitors in competition for the prizes of merit offered by the society.

It is due to the exhibitors, as well as the committee and the public at large, to state that the examination of the seventy-six samples of wines only occupied the brief period of about two hours—a space of time entirely inadequate to even allow of the proper classification of the large number of kinds of wine for examination, to say nothing of any attempt at distinguishing, with nicety, the slight shades of difference between those of the same age and class.

No wine connoisseur, however experienced, can, at any one sitting, which shall occupy only a few hours, properly sample and pass a correct judgment upon more than a very few kinds of wine during that sitting, because wines are of such a nature that the palate becomes vitiated to such an extent by the aroma of some and the excess of tannic acid contained in others, that the individual, after tasting a few kinds, is utterly unable to distinguish between sorts where there are only slight differences; and these trivial differences are really the valuable properties which go to make up the character and value of the wine. Hence it is deeply to be regretted that a more elaborate and critical examination of the wines on exhibition could not have been had at the State Fair, not more so because a different result might have attended the awards of the committee than on account of the magnitude of the interest involved.

It may not be amiss here to state, that among exhibitors of wines was a firm having not less than a half a million of dollars invested in the wine business, while another exhibitor was the representative of a society which already cultivates four hundred acres in vines, and contemplates planting out six thousand acres within the next decade of years.

Even had the committee taken sufficient time to have made their examinations with proper deliberation, they could have only come to the conclusion, that although they should award the prize to a wine of a certain locality, it would be no conclusive test of merit, as the competing wines raised on certain other localities were an entirely different kind, because of locality where produced. Wines raised in Sonoma may be properly put in competition with other wines grown in the same locality; but with such distinct differences in soil and climate as are found between Sonoma, Los Angeles, and El Dorado County, it becomes an absurdity to place the wines of one of these districts with those of the other for comparative competition. A white wine of Sonoma is an

entirely distinct kind of wine from a white wine of Los Angeles; and neither will for a moment be taken, by a competent judge, for a white wine grown in Coloma.

These facts show that the premium schedule should call for a more specific classification, particularly of white wines, and these should be made the standard for excellence, because such wines are less affected by extraneous matter than red wines, and in the offers of premiums the competition should be stated to be between wines grown in districts having a similarity of climate. This might be done by dividing the State into three general departments: first—Los Angeles and vicinity; second—all the wine growing counties west of the San Joaquin River and south of Yolo County; third—all the section east of the San Joaquin and Sacramento Rivers and north of Yolo County, including the foot-hills of the Sierra range.

It is noteworthy that of wines which were put in competition as wines four years old and over, that those which were the oldest took the premiums. This is an encouraging circumstance to induce our vintners to keep their wines, so that they shall command a greater value by reason of improvement by age.

A small appropriation from the Legislature, so that a competent chemist could be employed to analyze the soils and wines of our young vineyards, would be of incalculable benefit to this growing and already important branch of productive industry. It would also enable the detection of any attempt at adulteration on the part of unscrupulous dealers, and be the means of keeping up the reputation of California wines as being solely the product of the vine.

One of the most important subjects connected with wine culture was scarcely touched upon by the committee, for the reason, as before stated, that they were pressed for time, and this subject is the first every vintner should thoroughly canvass, before embarking in the business—it is as to which are the best kinds of grapes for wine.

The Spanish Mission grape, which has already borne the test of eighty years of culture in the State without one recorded season of failure, still maintains its prominence, both as a dessert and wine grape. Indeed, by reason of its richness in grape sugar, the abundance of its juice, the evenness of its time of ripening, and the ample, broad, thick foliage, which enables it to withstand our dry, hot days, and during the succeeding cool nights absorb from the atmosphere an ample supply of moisture to feed its prodigious loads of fruit, places this variety almost without a peer for extensive vineyard cultivation. Experiments, however, with many European sorts, indicate that varieties may be obtained which will supersede the Mission grape, by reason of their possessing a higher aroma, which shall give to wines made from them that great desideratum, "boquet."

Among the foreign sorts, which already give evidence of great promise, is the black Burgundy wine grape of France. Samples of wine made from this grape, grown in a number of distinct localities, were pronounced exceedingly rich, and there is no longer any question but that California will produce the celebrated Burgundy wines, of an excellence far superior to those grown in its native district in France. Indeed, for young wines, the samples of Burgundy were remarkable for their color, body, and delicacy of flavor.

Among the wines on exhibition, were also found the famous Catawba of America. It may seem superfluous to speak in commendation of the Catawba grape, as a wine grape, but when its wine has already obtained

a world wide reputation, and this reputation may justly be increased, rather than lessened, by the improvement in the quality of this grape in our favorable climate, it becomes a matter of the highest importance to our vintners to inquire as to the policy of making it a leading feature in California vine culture.

A few reasons in favor of planting the Catawba grape for wine purposes may be briefly stated: Catawba wine has already obtained a lasting popularity. This grape will grow at a higher altitude in our mountains, and not suffer by frost, than any other wine grape. It also will flourish within the sweep of the cold ocean winds and fogs, unaffected by mildew. Finally, no other grape possesses so many elements for a wine of commerce, because its individuality of flavor is rather increased by age than lessened. It will also be an invaluable kind to mix with the Mission grape, to give the wines of the latter what they are most deficient in—boquet and flavor. A significant incident took place during the examination of two competing samples of Catawba wine by the committee, which was illustrative in a marked degree as to what constituted the real merits of Catawba wine. The samples were of the same age, and one of them when poured out into a glass was very clear, nearly white, and had evidently been well handled. Its competitor was of a dingy, cloudy hue, but it possessed in a far greater degree the strong flavor of the Catawba grape. To the latter was awarded the preference by the committee, solely on the ground that it tasted more like the Catawba grape. Indeed, this sample of highly flavored Catawba wine excited more commendation than any other variety of wine on exhibition.

Objections are made to this grape because it is not as prolific a bearer as the Mission grape; but when it becomes known that the Catawba never fails to produce a crop in all situations and seasons, and besides, when wines shall have become cheap, it will then be an object to grow such kinds as will make a high priced wine, for the deficit in quantity will be more than compensated by quality, and the lessened cost of labor in handling, cooperage, and storage.

At the outset of planting a vineyard, it is of the utmost importance to plant the most valuable kinds of grapes, as the difference in the cost of plants will in any event be trifling, while the after value of a vineyard when in full bearing will be double or quadruple, if not more.

ENTRIES OF WINE AND BRANDY.

B. N. Bugbey, Folsom, Sacramento County:
- Red wine of eighteen hundred and sixty-one and eighteen hundred and sixty-two, from the Mission grape.
- White wine of eighteen hundred and sixty-two, from the white Malaga grape.

This is a mountain vineyard, low down among the foot-hills.

J. T. Godfrey, San Francisco:
- Eight kinds of white and red wines, mostly the product of Sonoma Valley, of several vintages.

C. Weil, Sacramento:
- White and red wines.
- A sample of brandy, grown by C. F. Scholl, Anaheim, Los Angeles County.

Kohler & Frohling, San Francisco:
A large number of varieties and vintages of white and red wines and brandy, grown at Los Angeles.
A fine sample of Peach brandy.

George H. Butler, Sonoma:
White and red wines of the vintage of eighteen hundred and sixty-two.

J. M. McClellan, Sacramento:
Three varieties of wines.

A. Gaffnesch, Sacramento:
"Must," of the growth of eighteen hundred and sixty-three.

Charles Heinrich, Sacramento:
Three samples of white and red wines.

Martin Alhoff, Coloma, El Dorado County:
White still wine of the vintages of eighteen hundred and sixty, eighteen hundred and sixty-one, and eighteen hundred and sixty-two.
Red wines of various vintages.
Samples of Catawba, Isabella, and Burgundy wines.
Samples of grape, peach, and apple brandy.

The Buena Vista Vinticultural Association, Sonoma:
White wine of the vintage of eighteen hundred and fifty-seven, eighteen hundred and sixty, and eighteen hundred and sixty-one.
Red wines of eighteen hundred and fifty-seven and eighteen hundred and sixty-two.
Three kinds of brandy.
Samples of sparkling champagne.

J. Strentzel, Martinez, Contra Costa County:
Seven varieties of wine made from foreign grapes, among which were wines from the black Hamburg and Chasselas grapes.

Samuel Rich, Sacramento County:
Samples of red wine of the vintages of eighteen hundred and sixty-one and eighteen hundred and sixty-two.

FRUIT DEPARTMENT.

In this department of the exhibition there was a falling off, compared with the entries of several previous Fairs. This was owing, in great part, to the late period of the season at which the Fair was held, and from the fact that fruits generally ripened a few weeks earlier than in ordinary seasons. The general character of the fruit display was remarkably fine, and gave evidence that this branch of profitable and fascinating horticulture is receiving marked attention in all parts of the State.

It has so long been the custom to publish individual instances of enormous specimens of apples, pears, peaches, quinces, and grapes, that to

continue the habit would be to merely recapitulate what already appears, as though but a copy of the stereotyped record of many previous years' exhibitions. The greater attention, however, to varieties which are valuable, more on account of their intrinsic merits than because of size or showy appearance, is a favorable indication of improvement in this department.

The present season has been one of extraordinary productiveness in every branch of pomology. Indeed, the market for green fruits has been so abundantly supplied that no people in the world have had such luscious fruits, and at so little cost. This excess of supply over demand has set a great number of orchardists to work in drying their surplus fruits, and this has been carried on to so large an extent as to render the profitable importation of dried fruits to this coast a matter of hazard for the future. The rich saccharine qualities contained in our peaches, apricots, nectarines, and plums, with the certainty of abundant annual crops, should lead our farmers to go largely into the planting of orchards, for the sole purpose of drying the fruit for export. Nevada Territory, with its giant strides in population and development of mineral wealth, as well as the various countries along the Pacific coast, already afford a vast market for the surplus products of California, and none are sought for with greater avidity than our preserved and dried fruits. Among the features of this year's exhibition there were two articles which rendered it remarkable, if there had been nothing more. These were dried prunes and raisins. The prune and raisin of commerce have long since been considered a necessity of civilized life, and the ease with which both of these are raised and cured in this climate foreshadows that in no long time they will take their place among our list of extensive exports. The samples of dried prunes on exhibition were of the German variety, and were cured by simply being spread on tables and exposed a few days to the sun. Even in this way they retained the rich bloom of the green plum, and the dried pulp was soft, and plastic, and rich in that sharp acidity which constitutes the great value of this fruit for culinary purposes. It would be at but a trifling cost, and cause a delay only of a couple of years, for our orchardists to turn their many nearly valueless plum trees into prunes, by budding and grafting, so that, instead of witnessing tons of rotting fruit on the ground, which is worthless because the kinds are not valuable for drying, they could make the annual sale of their prune crops one of the most important items of their orchard receipts.

Heretofore there has been at our annual Fairs much inquiry for a grape which was every way suitable to make raisins; and on more than one occasion dried grapes have been exhibited for which a claim has been set up to have accorded to them the name of raisins. Any grape can be dried so as to give it the character, in outward appearance, of the raisin of commerce; but it is not every grape that will cure so as to be even an approach to the Malaga raisin. The only grape which has as yet been dried in this State so as to become a raisin at all resembling the Malaga raisin, is the White Muscat of Alexandria. This grape, after being dried, has the same color and soft pulpy body and rich aromatic flavor which so eminently distinguishes the raisins of Malaga. It is true, that any kind of grape, when dried, will be valuable for cooking purposes; but soft-fleshed grapes shrivel away to such an extent that when properly cured there is little left of them but skin and bones. On soft-fleshed grapes from one third to three quarters of their weight shrinks away under the process of curing, while of hard-fleshed kinds the loss of weight is only from one third to one half.

In planting future vineyards, two objects should be kept in the foreground: the production of wine, and raisins. The mere supplying of our present or prospective population with dessert grapes is insignificant, when compared with our already enormous capacity to supply; hence the making of wine and raisins for commerce are the only avenues through which to find markets for the products of our rapidly increasing vineyards.

ENTRIES OF APPLES, PEARS, PEACHES, AND QUINCES.

G. H. Tilley, Sacramento:
Thirty-nine varieties of apples.
Three varieties of pears.

G. Hock:
One variety of apples.
One variety of quinces.

A. Palm, Yolo County:
Three varieties of apples.

George Courtwright, Rock Springs:
One variety of apples.

H. Davis, Dutch Flat, Placer County:
Thirty-eight varieties of apples.
Eight varieties of pears.
Seventeen varieties of peaches.
One variety of quinces.
One variety of plums.
Eight varieties of grapes.

C. W. Reed, Yolo:
Fourteen varieties of apples.
Eighteen varieties of pears.
One variety of quinces.

George E. Coggshall:
Twenty-seven varieties of apples.
Four varieties of pears.
One variety of quinces.

A. S. Greenlaw:
Fifty-four varieties of apples.
Ten varieties of pears.
Two varieties of quinces.

Sanderson & Bro., San José:
A large number of varieties of apples and pears

Martin Knox, Yuba County:
Six varieties of apples.

A. Runyon, Sacramento River:
Twenty-six varieties of apples.
Two varieties of quinces.

J. M. B. Wetherwax, El Dorado County:
Thirty-two varieties of apples.
Sixteen varieties of pears.

C. V. Tallmadge, Sacramento:
One variety of apples.

J. E. Peasley, San Joaquin County:
Nine varieties of apples.

C. Weisel, Sacramento:
One variety of apples.
One variety of pears.

J. R. Nickerson, Placer County:
One hundred and sixty-two varieties of apples.
Sixty-eight varieties of pears.
Seven varieties of quinces.
Thirteen varieties of peaches.
Six varieties of plums.
Fifty-four varieties of grapes.

B. Cahoon, Sacramento:
One variety of pears.

C. G. Hidden, Sacramento:
Two varieties of pears.

R. R. Wiek, Sacramento:
Two varieties of quinces.

W. C. Felch, Sacramento:
One basket of peaches, raised by Ingoldsby, Coloma.

Mrs. J. Wise, Sacramento:
One variety of quinces.

B. N. Bugbey, Folsom:
One variety of grapes.

Samuel Rich, Sacramento:
Thirty-four varieties of grapes.

A. Gaffnesch, Sacramento:
Fifty-eight varieties of foreign grapes.

Mark Hopkins, Sacramento:
Four varieties of grapes.

FIBRE DEPARTMENT.

SILK.

About fifteen years have passed since the news went out from the Golden Gate at San Francisco that the arid Sierra range of mountains

contained inexhaustible gold bearing placers. Thus was there about to be furnished to the necessities of commerce additional supplies of bullion to meet the increasing demands of an extending civilization, which was producing, everywhere its influence went, an eager desire for luxurious life. In a few brief years, gold, which was a paucity, became a plethora in the marts of 'Change. This gave opportunity for the indulgence of extravagant personal expenditure, and its first effects were observed by a growing scarcity of that most costly and beautiful fabric of clothing, silk.

Indeed, the demand for this fibre has been so greatly in excess of its production, that there has become almost an exhaustion of the stocks in all silk growing and manufacturing countries. It is remarkable, that during this period of increased demand, there should have appeared climatic obstacles to its increased production. Indeed, unfavorable circumstances have operated to bring about a scarcity of silk in lessened production, nearly as much as increased demand has tended to the exhaustion of stocks on hand at the commencement of the period spoken of.

Meteorological observations indicate that the seasons in the south of Europe have been growing colder and moister during many years past. These are the unfavorable circumstances which have attended silk culture in Europe. It is an absolute requirement to the health of the silk worm, that it should have a dry, warm climate, free from explosive electricity. A single shock of a heavy discharge of electricity often kills the entire crop of worms in the cocooneries of France and Italy. Again, a protracted rain storm so saturates the leaf of the mulberry, on which the worms are to be fed, that a species of cholera becomes endemic among them, in consequence of the poisoned viscid secretions, engendered by the humid, sunless atmosphere. These phenomena of climate, when prevailing to an excessive degree, render what worms survive their unfavorable influences sickly, and unable to spin only an inferior article of silk. Nature has her law of reclamation and compensation, unerringly enforced by the Great Architect. Hence, when the nutritious alluvium, with its bosom garlanded with fragrant flowers, is torn from the mountain slope by the plunging torrent, it is given lodgment on the delta, to again unfold the mystic herbarium. Thus, when there is felt to be a declining production of silk in Europe, owing to causes beyond human control, it is discovered that there is a new land, toward the setting sun, possessing every requisité to make it a great silk producing country. It is needless to say that this new Eden is our highly favored and beloved California.

Without entering into an elaborate discussion as to reasons why silk culture may be made a successful undertaking by our people, a remark will satisfy all that every farmer or gardener ought to plant extensive fields of the mulberry, so that in a little time silk culture may be made a large business. The mulberry tree is easy of propagation, growing from cuttings; it makes a good hedge fence; it is free of vermin; its fruit is relished by the birds. This latter will save the destruction of the choice fruits of the orchard and vineyard. A farm surrounded and subdivided with hedges and avenues of the mulberry tree will in a few years be very valuable, solely for the foliage of the trees to sell to silk growers.

As there is neither explosive electricity nor rain in California from May to October, it is seen that climatic conditions are entirely in favor of this as a silk growing country.

ENTRY OF SILK COCOONS.

L. Provost, San José:
Two bouquets of cocoons.
Two wreaths of cocoons.

COTTON.

"Cotton is King"—a political axiom not found to stand the inexorable logic of war. Within the past two years, attempts have been made in various parts of the earth to cultivate this valuable fibrous plant, and with what measure of success remains yet to be learned. Cotton, as a fibre for human clothing, was grown ages before the era of written history, so that its extraordinary claim as an arbiter of commerce may not be of modern assumption. This much, however, is known, that it had no commanding importance until after the invention of the "gin" to separate the seed from the fibre. Possessing a well disciplined and abundant compulsory labor, with a climate and soil covering every requisite, the Gulf Atlantic States soon became the great cotton growers of the world. This pre-eminence was maintained against powerful efforts in India, aided by the British Empire, which could detail to this enterprise hordes of laborers, quite as much subject to the involuntary condition as was negro slavery in the United States. With quite as rich a soil, India yet lacked the favoring seasons which follow with periodical certainty in America. Cotton growing may assume some importance in countries where the climate assimilates to that of the Southern States, but such importance will be limited to the removal of the difficulties which have temporarily convulsed the industry of those States. With the return of stable government will return social order, and all classes being brought to the common level of necessity, will be obliged to work. This will add vastly to the physical labor power of the Cotton States, as there will be no longer any requirement that one half of the community should be employed in compelling the other half to labor.

Thus it is seen that the inducements to cotton culture in California are of a temporary rather than permanent character, and will be withdrawn entirely with the resumption of the industrial pursuits in the disturbed districts of the cotton growing States. Neither is California more favorably situated by reason of climate than by lack of labor facilities for the growing of this fibre. Cotton requires a warm moist climate for its most successful production, and on the phenomena of humidity the growing and ripening season in our State is the very reverse of that of the cotton States.

These suggestions are not made for the purpose of discouraging experiments in cotton culture in our State, but that important facts connected with it may not be lost sight of by those too sanguine in an enterprise which on first sight gives promise of splendid results.

ENTRIES OF COTTON.

Jackson & Johnson, Sacramento County:
Samples of a field of twenty-five acres.

J. Clark, Sacramento:
Sample grown on dry sandy soil.

WOOL.

In the early days of the California Mission "regime," sheep husbandry was carried on to an enormous extent by those most astute and enterprising pioneers of civilization, the "Mission Fathers." Afterwards plundered, trampled upon, and discouraged by Mexican misrule, the Mission establishments, with their countless herds of sheep, had gone into ruins and nearly disappeared from the ranges at the advent of Anglo-American enterprise. Appreciating the examples of success found in the history of the early settlers, and under the protection of a just and fostering government, sheep husbandry is again assuming vast importance in California. With unlimited pasturage, and a climate peculiarly suited to the health of this animal, especially when congregated in large bands, the crossing of breeds continues with unexampled rapidity, and it may be said truthfully that at this early day our State can boast of larger herds of pure merinos, belonging to a single proprietor, than any other country, not even excepting their nativity, Spain.

Few obstacles are encountered in sheep growing in this State, and most of these are susceptible of simple remedy. Among these difficulties, it is stated, is an unevenness in the fibre, on account of the checking of its growth just before and during the early part of the rainy season, when feed is short. This can and is being remedied by attentive growers, who cut and stack hay to be fed out during the season of famine. This keeps the flocks in good condition, so that the staple has an even unchecked growth.

ENTRY OF WOOL.

J. B. Hoyt, Solano County:
Three fleeces of Spanish Merino from eleven months lambs, weighing, in the aggregate, thirty-six and a half pounds.

IMPLEMENT AND MACHINERY DEPARTMENT.

E. Hughs, Santa Clara County:
Safety blasting apparatus.
Eyeless mining pick.

Thomas Varney, San Francisco:
Amalgamating pans.

Julius Cameron, Sacramento:
Model of amalgamating pan.

R. K. Wick, Sacramento:
Mining picks.

C. H. Harrison, San Francisco:
Eccentric steam force and lifting pump.

F. B. Lamb, San Francisco:
Sheep shearer.

Baker & Hamilton, Sacramento:
Header.
Barley mill.
Agricultural implements.

J. M. Horner, San Francisco:
Washing machine "Economy."

B. F. Connelly, Sacramento:
Hansbrow's Challenge Force Pump.

S. E. Phelps, San Francisco:
Clothes wringer.

R. K. Wick, Sacramento:
Blacksmith work.

B. Collins, San Leandro:
Washing machine "Little Giant."

John Denn, Sacramento:
Wine press.

J. L. Morrill, Sacramento:
Force and lifting pump.

J. D. Card, San Francisco:
Tire upsetter.

J. Dickerson, Sacramento:
Model of windmill.

W. B. Ready & Bro.:
Two gang ploughs.

W. M. Jackson, Woodland:
Windmill.

George Kelton, Mokelumne:
Harrow.

Cronkite & Beebe, Sacramento:
Four ploughs.
Gang plough.
Cultivator.

S. Stevens, Sacramento:
Model hay press.

F. Zech, San Francisco:
Piano forte.

George Pfaff, San Francisco:
Flutes and Piccolo.

Jacob Zech, San Francisco:
One grand action piano forte.
One piano forte.

Warren Holt, San Francisco:
School desks.

Goodwin & Co., Sacramento:
One sofa.
One easy chair.
One lady's chair.
Four ladies' chairs.
One lounge chair.
Two spring beds.

H. M. Bernard, Sacramento:
Family carriage.
Rockaway.
Top buggy.
Freight wagon.

Rippon & Hill, Sacramento:
Carriage wheels.

George P. Kimball, San Francisco:
Model truck.
Patent wheels.

George Schaefer, Sacramento:
Wine cask, one thousand gallons

R. Ireland, Sacramento:
Brooms.

E. Moulthorp, Sacramento:
Ross' patent churn.

E. T. Groves, San Francisco:
Wire work.
Bird cages.

A. S. Halladie, San Francisco:
Wire rope.

J. S. Harbison, Sacramento:
Bee hive.

H. Tubbs, San Francisco:
Rope.

Lord, Holbrook & Co., Sacramento:
Copper ware.

Kelly, Mott & Co., Sacramento:
Tin work.

Lamott & Co., Sacramento:
Hats and caps.

Nash & Fogg, Stockton:
Boots and shoes.

Hiram Cook, Sacramento:
Two ladies' saddles.
Two gentlemen's saddles.

Parker & Perry, Sacramento:
Harness.

F. Rabel, Sacramento:
Exhibit of leather.

C. F. Cook, San Francisco:
Ten boxes assorted soap, from "Eureka Soap Company."

P. Franklin, Sacramento:
One case cigars.

Gruhler & Co., Sacramento:
Lager beer.

FANCY GOODS DEPARTMENT.

D. Norcross, San Francisco:
Two scarlet velvet P. G. aprons.
Two satin velvet I. O. of O. F. aprons.
Three square and compass aprons, Masonic.
Two full chart aprons, Masonic.
One scarlet royal arch apron.
Three black aprons, embroidered, I. O. of O. F.
Three purple collars, I. O. of O. F.
Two scarlet collars, I. O. of O. F.
One green collar, I. O. of O. F.
One watered silk collar, I. O. of O. F.
One blue silk velvet collar, Masonic.
Two pairs blue and white cords and tassels.
One pair heavy white cords and tassels.
One pair drab and brown cord and tassels.
Three soft silk girdles.
Four white silk girdles.
Eight silk girdles, assorted colors.
One piece of fringe.
Six cards silk buttons.
One bunch silk buttons.
One brown shade tassel, worsted.
One crimson tassel.
Two pairs carriage tassels.
Two sets silk curtain tassels.
Two sets silk cushion tassels.
Four sets worsted cushion tassels.
Four sets black and white cushion tassels.
One set white and black cushion tassels.
One pair scarlet and worsted cushion tassels.
Nine pairs silk cloak tassels.
Five pairs chenille tassels.
One pair blue and yellow worsted tassels.
One pair small gold and black tassels.
Two pairs Captain's shoulder straps
One pair Second Lieutenant's shoulder straps.
One pair Major's shoulder straps.
One pair Colonel's shoulder straps.
One pair Lieutenant-Colonel's shoulder straps.

One pair Artillery Captain's shoulder straps.
One pair First Lieutenant's (artillery) shoulder straps.
One pair Second Lieutenant's (artillery) shoulder straps.
One pair navy shoulder straps.
One pair M. D.'s shoulder straps.
One pair Lieutenant's shoulder straps.
Six pairs navy wreaths.
Five pairs cross cannon.
Four pairs gold eagles.
Two pairs cross sabres.
One Knight Templar sword.
One jewel sword.
One polished sabre.
One bronzed sabre.
One sash, number 0.
One sash, number 1.
One heavy belt.
One infantry belt.
One American flag.
Nine embroidered bugles.
Two crochet capes.
Four children's crochet capes.

Mrs. A. Ames, Sacramento:
One case millinery.

Wilhelm Windmiller:
Cotton embroidery.

Mrs. A. Hertel:
Two embroidered tidies.

Mrs. L. Foster:
Worsted embroidered lamp mat.

Mrs. Horace Adams, Sacramento:
Infant's skirts, embroidered.
Frames of California sea weeds and shells

Miss Mary E. Drew, Sacramento:
Crochet shawls, in worsted.
Tidy, in worsted.
Three lamp mats, in worsted.
Three tidies, in cotton.
One collar.
One pair cuffs.

Mrs. J. Bithell, Sacramento:
One child's embroidered dress.

Miss Addie A. A. Curtis, Sacramento:
Lamp mat, crochet.
One shirt.

Miss Louisa Myers, Sacramento:
Worsted embroidery.

Miss M. L. Klays, Sacramento:
Worsted work, embroidery.
One pair of slippers.
Worsted work.
One crochet tidy.

Miss A. Smith, Marysville:
Two crochet tidies.

Mrs. H. M. Adams, Placerville:
One silk embroidered shawl.
One chenille apron.
One chenille ottoman cover.
One worsted embroidered sofa pillow.
One chenille embroidered toilet cushion.

Mrs. E. H. Heacock, Sacramento:
One quilt.

Mrs. J. A. Carroll, Sacramento:
One baby's crochet crib blanket.
One crochet carriage blanket.

Mrs. L. A. Booth, Sacramento:
One worsted worked chair back and seat.
One silk patchwork chair back and seat.

Miss Minnie Booth, Sacramento:
One crochet cape.

Miss Edith M. Davis, Sacramento:
Specimen tarleton work.

Mrs. Phil. Caduc, Sacramento:
One embroidered sofa cushion.
One crochet afghan.
One embroidered petticoat.

Mrs. Wm. H. Develin, Sacramento:
Three crochet sacks.
One crochet shawl.
One crochet tidy.

Miss Julia Lorceuze, Sacramento:
One crochet tidy.
One lamp mat.

Mrs. John Weber:
Silk embroidered vest.

Albert Esterle:
One sofa pillow, silk patchwork.
One table cover.
One chair and cover.

Mrs. E. G. Gower, San Francisco:
One crochet shawl.
One crochet tidy.

One crochet lamp mat.
One piece of worsted embroidery.

Mrs. Juliana Bayer, Sacramento:
Worsted embroidery.
One pair of slippers, embroidery.
One needle book, embroidery.
One needle book, silk and straw.
One table cover.
One centre-table cover.
Three collars.
One necktie.
One pair knit and embroidered window curtains.
One tidy.
One collar.
One lady's travelling bag.
One pincushion.
One watch pocket.

Miss Melvina P. Wheeler, Sacramento:
Case of crochet work, containing twenty-six pieces.

Miss Alice M. Cully, Sacramento:
One crochet lamp mat.
One tarleton worked collar and cuffs.

Miss Julia Dremar, Sacramento:
Two crochet worsted shawls.
One crochet lamp mat.
Six crochet collars.

Mrs. A. Smith, Sacramento:
Specimen work, in frame.

Miss Susie Cunningham, Sacramento:
One silk patchwork quilt.

Miss L. Petree, Sacramento:
One silk patckwork quilt.

Mrs. W. A. Headinberg, Sacramento:
One carriage afghan.

Mrs. Clark, San Francisco, Agent Deaf, Dumb, and Blind Asylum:
Fourteen specimens of crochet work.
Five specimens of embroidery.
Case of bead work.

Mrs. J. H. Shaddnck, Grass Valley:
One embroidered collar.

Mrs. H. N. Fullum, San Francisco:
Two cone frames.
Two cone baskets.
One shell frame.

Miss Fannie A. Atherton, Sacramento:
One hair wreath.

R. H. McDonald, Sacramento:
Case of surgical instruments.

H. Bowman, Sacramento:
Case of California prepared medicines.

Miss C. Wethey, Yolo County:
One horn card basket.

Justin Gates & Bro., Sacramento:
Exhibit of medicines and perfumery.

August Kohler, San Francisco:
Case of trusses, shoulder braces, ladies' belts and supporters, etc.

Adolph Muller, San Francisco:
Nine fur capes.
One swan victorine.
Two Arctic white fox skins.
One wolf robe.
One gray fox robe.
One wolverine robe.
Forty genuine ermine skins.

F. Fregazi, Marysville:
Case of perfumery.

Miss L. C. Baldwin, Marysville:
Case of hair-work jewelry.

Frederick Whitaker, Sacramento:
Two burr and cone frames.

Miss Nettie Reynolds, Vacaville:
Case of hair-work.

Mrs. G. B. Dian, Sacramento:
One alum basket.

Jesse Morrill, Sacramento:
One cork oak tree.
One lemon tree.
One tree cotton.

Crosby & Page, San Francisco:
Samples of stencil plates.

A. Bergman, Sacramento:
Keg of wine vinegar.

U. Simmons, Colusa:
Samples of mineral water.

Mr. J. K. Brown, Sacramento:
Herbarium of California flowers.

V. Squarza, San Francisco:
Prepared punches.

PHOTOGRAPHS AND PAINTINGS.

Mrs. W. E. Brown, Sacramento:
Six pastel paintings.
Two portraits in oil.

W. C. Felch, Sacramento:
Landscape in oil.

P. Kennedy, Sacramento:
Two landscapes in oil.

Mrs. George W. Chesley, Sacramento:
Three oil paintings.

Miss Alice N. Cully, Sacramento:
One fuschia picture.

Miss C. A. Templeton, Sacramento:
Pencil portrait.

H. S. Beals, Sacramento:
One photograph, retouched, life size.
Two frames card pictures.
One picture of deceased child.

W. Dickerman, Sacramento:
Four photographs, life size.
Two photographs, colored.
Eighteen photographs, small size.
Five photographs, small size, colored.
One frame card pictures.

Mrs. Mark Hopkins, Sacramento:
Six bouquets.

D. De Bernarde:
Collection of bouquets.

GOLD AND SILVER MINING.

There were entered for donation to the cabinet of the society, and for exhibition, specimens of gold and silver bearing rock from two hundred and ninety-five mining claims, which numbered more than three thousand samples of ores. The interest manifested in the department of minerals became absorbing to a great many visitors at the Fair, and this really was but a reflex of the public mind, because at no previous time since the discovery of the placers at Coloma, have the great mass of our people been so entirely absorbed in mining enterprises as at the present moment.

Fifteen years since, California was a sparsely settled country, with its few inhabitants dwelling near the sea coast, and engaged in the pursuit of stock growing. At that time Oregon had a few settlements of western pioneers engaged in the fur trade, and as a subordinate occupation, a

rude agriculture. British Columbia was a wilderness, penetrated only by the adventurous trapper; while the great inland central basin was just forming the nucleus of a community at Salt Lake City. A glance at a map of the North American Continent opens out to the sweep of the eye a region west of the Rocky Mountains, and tributary to the Pacific coast, of extent nearly equal to one third of the whole east of that great natural dividing ridge. This western part of the continent being remote from the centres of the civilized populations of the Eastern States and Europe, could not be expected to send to such far off localities any very considerable number of settlers, without there was something more than of an ordinary character to induce emigration. Here, however, in this unknown land, was found a genial climate, and that most wonderful magnetic talisman to arouse the spirit of avarice—rich mines of gold; and, as if touched by a magician's wand, the nations poured hitherward streams of fortune seekers. Nor was it long before that which rumor gave out concerning gold fields said to have been discovered from Darien to the hyperborean regions of the North, and inland to the centre of the continent, became confirmed as a fact.

Fifteen years, and what a change! California springing into full life at a bound, as Minerva from the brain of Jupiter, already has become the mother of two States, Oregon and Nevada, both wearing "golden crowns, and tripping into the Union on silver feet;" while Washington, Idaho, and Arizona, a trio of Territories, gemmed with the wealth of the Ophir of King Solomon, send back upon the maternal bosom testimonials of the thrift and enterprise of those new communities. Even British Columbia and some of the northwestern States of Mexico, acknowledge a filial debt to the Eureka State. Never in the march of population and civilization, was there anything to equal the settlement of the Pacific coast by the Anglo-Americans.

The grand inciting idea in this march of empire is gold, and were not the mines discovered in this great region of marvellous richness, this enormous movement of population and material means would long since have borne, as its legitimate fruits, disaster and ruin. What else than a reality in the asserted richness of her gold placers could have made the crusade from the Atlantic States to California, in eighteen hundred and forty-nine and eighteen hundred and fifty, other than a stupendous immolation of labor without reward? Would a new empire have sprung up on Frazer River, were not the sands on its icy shores rich in treasures of gold? Idaho would still have remained a howling wilderness, instead of becoming the field of a large and thrifty population, had there never taken place the "stampede" of fortune seekers from California to Salmon River. Is it to be supposed that Virginia would have become in three years the third or second city on the North Pacific coast, and rose as she has from the bleak sides of a desolate mountain, were there not self-sustaining realities in Washoe? Would twenty thousand people rush headlong towards the centre of the continent, just as the inhospitable season of winter sets in, were it not certain that Reese River has been gifted by the Great Giver with abundant riches? But why appeal to the multitude of croakers who in all other countries, as well as in California, have raised with dismal voice the predictions of failure from the beginning? Let them continue the unavailing cry that the public is crazy on the subject of gold and silver lodes.

It is true that in the early attempts at working quartz rock many failures occurred, which for years afterwards greatly discouraged investments in this kind of mining. It was then a matter of experiment with

most of those who had anything to do with it, as our people had been raised to totally different occupations from boyhood. The timid and dubious should reflect that quartz mining to-day is quite a different operation from the same kind of mining ten years since. Quartz mining in California never was a failure because there was not a remunerative amount of the precious metals in the rock. It was, in many instances, a failure, because the machinery and apparatus used for crushing and extracting the bullion was incapable of saving the gold and silver contained in the ore. Wonderful improvements have been introduced in quartz mining within the past three years, which effect so great a saving of the gold and silver contained in the crushed rock, that ores which before the introduction of the amalgamating pan process were considered valueless, now pay largely. Indeed, under the new process, most of the ledges worked years since, and abandoned because they could not be made to pay, are now being sought after, and are in most instances found to be very profitable. These new improvements, called amalgamating pans, which are used for amalgamating the quicksilver with the minute particles of silver and gold which float in the water, have been invented to meet the necessities of the silver discovery in Nevada Territory; and if California had gained nothing more by the opening of those rich mineral deposits, she has been enabled to avail of these invaluable inventions, which give value to her many otherwise worthless quartz ledges.

There are, doubtless, more than two hundred thousand well defined gold and silver bearing quartz ledges already discovered within the region of the Pacific lying east of Salt Lake, and between British Columbia and Mexico. Indeed, it is one of our greatest drawbacks that so large a number of persons should continue to prospect for new ledges, when there are already more in course of being prospected than can be advantageously worked by any population which will be available on this coast for centuries to come. A reference to the archives of the Secretary of State will give a list of several thousand mining companies which have filed certificates of incorporation with that officer. Should it become the intention of each of these incorporations to open their claims, and erect mills for working the ores, it may be readily seen what an enormous capital would be required to put them in a complete working condition.

The mere locating a mining claim, filing articles of incorporation, and issuing certificates of stock, creates no wealth. Every mine is practically valueless until its ore is crushed, and the precious metals it contains are in a condition to meet commercial exchanges. This obvious fact seems to be lost sight of entirely too much by our eager, restless population, who seem determined to look the entire continent over for outcroppings before entering into the real labors of mining.

In view of the growing importance of the mining interest on this coast, the Secretary, with the concurrence of the Board, on the twenty-ninth of July last, issued the following circular, and sent it to every mining locality in the State and surrounding Territories, and the following exhibit of minerals is the result:

[Circular.]

ROOMS OF CALIFORNIA STATE AGRICULTURAL SOCIETY,
Sacramento, July 29th, 1863.

DEAR SIR:—The unprecedented development of mineral wealth on the Pacific Coast within the last year is one of the wonders of the age, and bids fair to revolutionize the material and commer-

cial interests of the world. Yet we all feel that there is something wanting—a demand to be supplied, in order to give to this great industrial pursuit, both at home and abroad, that character of reality, of permanence, and stability which its real merits deserve. The State Board of Agriculture, desiring to supply, in part, this desideratum, are making an effort to collect together specimens from all parts of the coast, and build up at their rooms a Cabinet of Minerals worthy of the richest mineral district on the globe, and which shall be to the capitalist and to the laborer a tangible advertisement, and a real sample of our unequalled mineral wealth, and of the rare opportunities of permanent and profitable investment, and certain and bountiful reward of labor.

You will see at once that this is an undertaking in which every industrial pursuit, and every individual resident on this coast is interested, and hence, with a confidence that you will cheerfully respond, we call on you and invite you to contribute to the success of the enterprise by forwarding to the undersigned, in time for the ensuing State Fair, September twenty-fifth, such specimens from your mines, or from any mines in your locality, as will best illustrate the character of such mines.

Please forward, with such specimens, a statement of the location, extent, probable or positive yield, and any other important facts connected therewith; also the name of the individual or company owning the same, and whether donated to the society, or contributed for exhibition at the Fair only. When received they shall be neatly labelled with the name of the individual or company donating or contributing the same and other facts forwarded, and carefully preserved for the examination of the curious, the scientific, or speculative, now and hereafter.

All specimens may be forwarded through Wells, Fargo & Company, or other express companies, from any portion of this coast, as arrangements have been made with them, and the different stage companies, and the Steam Navigation Company, for their conveyance free of cost.

Respectfully, your obedient servant,

I. N. HOAG, Secretary.

ENTRY OF GOLD AND SILVER MINERALS.

Hakendorn Mine, Silver Mountain, Calaveras County:
Specimens of silver ore.

Isabell Mine, Garden Valley, El Dorado County:
Ledge four feet wide on surface, and ten feet wide at a depth of thirty feet; ledge crops out one thousand two hundred feet in length.
Specimens contributed by P. G. Isabell.

Peach Bottom Ledge, San Paz:
Assays six hundred dollars in silver to the ton.
Specimens contributed by James W. Cassenberry.

Mammoth Ledge, Shasta County:
Specimens contributed by B. M. Estere.

Empire Mine, near Grass Valley, Nevada County:
Ore pays, in gold, from twenty dollars to eighty dollars to the ton, at depths from twenty-five to four hundred feet.

Sacramento Company, Limekiln District, Nevada County—Miner Ledge:
Specimens of gold rock fifteen feet from surface.

Grass Valley Township, Nevada County:
Croppings from gold quartz.

Star Ledge, near Illinoistown, Placer County:
Specimen of gold bearing quartz.

North Star Ledge, Illinoistown, Placer County:
Specimens of gold bearing quartz.

Neptune Company, Squaw Valley, near Lake Tahoe:
Specimens of silver rock.

New York Ledge and Company, Slate Range, Tulare County:
Twenty-seven pounds rock assays twenty-eight grains of gold and silver.
Specimens donated by E. D. Wheatly.

Morrow Ledge, Slate Range Mining Company, Tulare County:
Assays, in gold and silver, two thousand eight hundred and twenty-seven dollars to the ton.
Specimens donated by E. D. Wheatly.

Francis Mining Company, Slate Range, Tulare County:
Assays, in gold and silver, three thousand one hundred and thirty-five dollars to the ton.
Specimens donated by E. D. Wheatley.

Albany Mining Company, Slate Range, Tulare County:
Two hundred and eighty pounds of rock gave forty-three dollars and eighty cents—nearly all of silver.

Rochester Mining Company, Slate Range, Tulare County:
Working assay—twenty pounds of rock gave twenty grains of gold and silver.
Specimens donated by E. D. Wheatly.

Cataraugus Mining Company, Slate Range, Tulare County:
Twenty-five and one half pounds of rock gave ninety-seven grains—nearly all of gold.
Specimens donated by E. D. Wheatly.

San Francisco Lode Company, Slate Range, Tulare County:
Specimens donated by E. D. Wheatly.

Philadelphia Mining Company, Slate Range, Tulare County:
Twenty-four pounds rock gave forty-three grains gold and silver.

I X L Lode, Silver Mountain, Amador County:
Specimens silver ore.

Volcano, Amador County:
Specimens of gold and silver quartz.
Assays five hundred dollars to eight hundred dollars to the ton.
Specimens contributed by C. C. Belding.

Spanish Mine, Coloma Road, El Dorado County:
Specimens of gold, silver, and copper; rock taken five feet below the surface.

Minerva, Esmeralda District, Mono County:
Specimens contributed by Francis Garesche.

Antelope Lode, Silver Hill, Esmeralda District, Mono County:
Specimens three hundred feet from surface assays three thousand dollars to the ton.
Specimens contributed by Francis Garesche.

Western Summit Quartz Lode, Last Chance Hill, Esmeralda District:
Assays two thousand dollars to the ton.
Specimens contributed by Francis Garesche.

Crockett Lode, Last Chance Hill, Esmeralda District:
Specimens contributed by Francis Garesche.

Aurora Lode, (Real del Monte Consolidation,) Last Chance Hill, Esmeralda District:
Specimens from a depth of eighty feet assay one thousand six hundred dollars to the ton.
Contributed by Francis Garesche.

Clan Alpine Ledge, Esmeralda District, Aurora:
Specimens contributed by Francis Garesche.

Wide West, Esmeralda District:
Specimens of silver rock.
Specimens contributed by Francis Garesche.

Wide West, Esmeralda District:
Specimens of gold bearing quartz.
Specimens contributed by Francis Garesche.

Rover Lode, Silver Hill, Aurora:
Specimens contributed by Francis Garesche.

Mina Rica, Middle Hill, Aurora:
Specimens contributed by Francis Garesche.

Stone Wall, Dix Knoll, Esmeralda:
Specimens contributed by Francis Garesche.

Bright Star, Middle Hill, Esmeralda:
Specimens contributed by Francis Garesche.

Seymour Lode, Last Chance Hill, Esmeralda:
Specimens contributed by Francis Garesche.

Moscow Lode, Last Chance Hill, Esmeralda District:
Specimens contributed by Francis Garesche.

Forbs Lode, Silver Hill, Aurora:
Specimens of gold and silver bearing rock.

Brazil Lode, Middle Hill, Esmeralda:
Specimens contributed by Francis Garesche

Pond Consolidation, Last Chance Hill, Esmeralda District:
Specimens contributed by Francis Garesche.

Garrione, Esmeralda:
Specimens from shaft thirty-five feet deep.
Specimens contributed by Francis Garesche.

Yancey Lode, Silver Hill, Esmeralda District:
Specimens contributed by Francis Garesche.

Davenport Lode, Silver Hill, Esmeralda District:
Specimens from shaft ten feet deep.
Specimens contributed by Francis Garesche.

Third Extension North Sonoma Hartley Ledge, Reese River District:
Specimens contributed by A. A. Bennett.

Yellow Jacket, Virginia District, Nevada Territory:
Specimens of gold and silver bearing quartz.

Empire Lead Number One, El Dorado County:
Specimens of gold bearing rock.
Specimens contributed by J. C. Tubbs.

Sister Series Ledges, Augusta District, Lander County, N. T.:
Specimens from ten ledges; rock assays two thousand three hundred dollars to the ton.
Specimens contributed by C. G. Going.

Bloomer Lode, Bloomer Hill, Butte County:
Specimens of gold quartz from shaft ten feet deep.
Specimens contributed by Joseph Young.

Kentucky Ledge, Trinity District, Humboldt County, Nevada Territory:
Specimens from ledge two and a half feet wide at surface.

Gem of the Sierras, Sierra District, Humboldt County, Nevada Territory:

Grand Trunk, Clear Creek District, Humboldt:
Specimens from ledge two feet deep and twelve feet wide.

Evening Star Ledge, Trinity District, Humboldt County, N. T.:
Specimens from ledge one foot deep and four feet wide.

St. Charles Ledge, Trinity District, Humboldt County, Nevada Territory:
Specimens from shaft eight feet deep and thirty-eight inches wide.

Little Giant, Santa Clara District, Humboldt County, Nevada Territory:
Specimens from shaft five feet deep and two feet wide.

Yosemite, Oro Fino District, Humboldt:
Specimens of gold and silver bearing rock.

Trinity Series Ledges, Trinity District, Humboldt County, N. T.:
Specimens from one foot deep and ledge one foot wide.

Pennsylvania Ledge, Trinity District, Humboldt County, N. T.:
Specimens from ledge three feet deep and fifteen inches wide.

Texas Ledge, Trinity District, Humboldt County, Nevada Territory:
Specimens from ledge two feet deep and six feet wide.

Kentucky Ledge, El Dorado District, Humboldt:
Specimens of gold and silver rock.

Monitor Ledge, Buena Vista District, Humboldt:
Specimens of gold and silver rock.

Tehama Series, Pueblo District, Humboldt County, Nevada Territory.

Trinity Ledge, Star District, Humboldt.

Banner Ledge, El Dorado District, Humboldt.

Lady Franklin, El Dorado District, Humboldt.

Canada Ledge, Trinity District, Humboldt County, Nevada Territory:
Ledge two feet deep and eighteen inches wide.

Chloride Series, Pueblo District:
Specimens of gold and silver rock.

Fort Pitt Ledge, Prince Royal District, Humboldt
Shaft six feet deep.

Pueblo Series, Pueblo District, Humboldt County
Surface rock.

Æsop Lode, Prince Royal District, Humboldt.

Mark Antony Lode, Humboldt:
Shaft five feet deep.

Honey Lode, Prince Royal District, Humboldt:
Shaft four feet deep.

Queen Lode, Prince Royal District, Humboldt:
Surface rock.

Washington Lode, Prince Royal District, Humboldt:
Specimens from shaft one foot deep.

Newton Lode, Prince Royal District, Humboldt:
Shaft forty feet deep.

Silver Lode, Prince Royal District, Humboldt:
Shaft three feet deep.

Lincoln Lode, Prince Royal District, Humboldt:
Shaft three feet deep.

Webster Lode, Prince Royal District, Humboldt:
Surface rock.

Pennsylvania Ledge, Prince Royal District, Humboldt:
Shaft fifteen feet deep.

Pride of the West, El Dorado District, Humboldt.

Mount Vernon, El Dorado District, Humboldt.

Governor Nye, El Dorado District, Humboldt.

Quaker Ledge, El Dorado District, Humboldt.

El Dorado Ledge, El Dorado District, Humboldt.

Galena Ledge, El Dorado District, Humboldt.

Piedmont Ledge, El Dorado District, Humboldt.

Bajazette and Golden Era, Virginia, Nevada Territory:
Specimens from shaft sixty feet deep and forty feet wide.
Specimens contributed by H. T. Holmes.

Ethan Allen Ledge, Austin, Nevada Territory:
Specimens contributed by W. H. Clark.

Cicero Ledge, Austin, Nevada Territory:
Specimens contributed by W. H. Clark.

New El Dorado Mine, near Placerville, El Dorado County:
Shaft fifty-five feet deep; ledge sixty feet wide; claim three thousand six hundred feet long.
Specimens exhibited by F. A. Babcock.

San Francisco Ledge, Santa Fé District, Reese River, Nevada Territory:
Assays three thousand two hundred dollars to the ton.
Specimens exhibited by G. Watt.

Otho Ledge, Santa Fé District, Reese River, Nevada Territory:
Specimens exhibited by G. Watt.

Clement Ledge, Santa Fé District, Reese River, Nevada Territory:
Specimens exhibited by G. Watt.

King Ledge, Santa Fé District, Reese River, Nevada Territory:
Specimens exhibited by G. Watt.

Lady Franklin Ledge, Silver Mountain, Amador County:
Specimens contributed by R. Dale.

Wide West, Silver Mountain, Amador County:
Specimens contributed by R. Dale.

Young Hero, Silver Mountain, Amador County:
Specimens contributed by R. Dale.

Buckeye No. 1, Silver Mountain, Amador County:
Specimens contributed by R. Dale.

Star of the West, Silver Mountain, Amador County:
Specimens contributed by R. Dale.

Ophir Ledge, Virginia City, Nevada Territory:
Specimens contributed by R. Dale.

Mexican Mine, Virginia City, Nevada Territory:
Specimens contributed by R. Dale.

Savage Mine, Virginia City, Nevada Territory:
Specimens exhibited by Jerome C. Davis.

Tellurium Gold and Silver Mining Company, Ione, Amador County; from the Kendall Ledge:
Assays from one hundred and fifty to five hundred dollars in gold, and forty dollars in silver.
It takes its name from the metal tellurium being found in it in considerable quantities.
Specimens donated by J. H. Bradley.

W. D. Jones, Wolf Creek, Nevada County:
Specimens of gold and silver rock.

Original Williams & Killenger Lode, Copper City, Shasta County:
Specimens of gold, silver, and copper.
Specimens contributed by George J. McKeon.

Wilson Mine, Chening Tunnel, Esmeralda.

Sacramento Lode, Rose Spring Hill, El Dorado County:
Free gold bearing quartz.
Specimens exhibited by T. M. Lindley.

Collection of specimens from Humboldt County, Nevada Territory:
Specimens exhibited by John Coulter.

Williams & Killinger Mining Company, Shasta County:
Specimens of silver ore.
Specimens contributed by J. A. Hunt and A. C. Sweetzer.

Bloomer Hill Quartz Mining Company, Butte County:
Specimens of virgin gold.
Specimens exhibited by Joseph Young.

J. R. Nickerson, Placer County:
Specimens of gold and silver rock.

Station Gold and Silver Mining Company, Elses Creek, near Volcano, Amador County; T. Serono, President; L. M. Lane, Secretary; incorporated August twenty-third, eighteen hundred and sixty-three.

Volcano Gold and Silver and Copper Mining Company, Slug Gulch, El Dorado County:
Assays in copper, thirty-eight per cent; in silver, twenty-seven dollars and seventy-five cents per ton.
Specimens contributed by J. M. Patterson.

Middle Tunnel Company, Esmeralda District:
Eight foot ledge; works fifty dollars per ton.

Silver King, Silver King District, East Carson River.

From a quartz ledge on the ranch of O. S. Witherby, thirty miles from San Diego, twelve miles from the coast:
Specimens contributed by O. S. Witherby.

Mammoth Ledge, Silver Mountain, Amador County:
Specimens contributed by R. Dale.

Alhambra, Silver Mountain:
Specimens contributed by R. Dale.

Montezuma Mine, North Fork of the Cosumnes River, eight miles from El Dorado, El Dorado County:
Shaft one hundred and forty feet deep, ledge four feet wide; average working assays, twenty-two dollars to the ton.

Saratoga Company, near Sonora, Tuolumne County:
Specimens contributed by Chancellor Pettergrew.

L. L. Wilson exhibited twenty-nine specimens of silver ore, from the following mines: Tiger, Masonic, Sheba, Lander, Governor Potter, Morristown, Wallace, Monitor, Keokuk, Gould & Curry, Miami, Ferguson, and Wilson.

Rough and Ready Mining Company, Jamison Creek, Plumas County, exhibited a cabinet of gold bearing quartz, comprising over two thousand specimens.

G. F. Seely exhibited specimens of silver ore from the following mines in Lander County, Reese River, Nevada Territory: Manhattan, Cicero, Miami, North Star, Post Hole, Ellipse, Richmond, Leviathan, Sister Series, Sonoma, Little Giant, Marshall, Isabella, Oregon, Eclipse, Crœsus, Paul Jones, Mineral Point, Mountain, Lizzie, Hunchback, Eastern,

Neosho, San Francisco, J. J. Crittenden, Sinaloa, St. Louis, San Antonio, Clement, Mother of Ledges, Otho, Oro Fino, Mount Vernon, Cræsus Number Two, Revenue, Mountain Queen, Ben Franklin, Tipperara, Bathurst, Leach, Richland, Providential, Comet, Saratoga, Franklin, Rochester, Lightner, Davis, Mermaid, H. A. Douglard, Ogden, Uncle Sam, Arizona, Champagne, Willow, Alhambra, Gould & Curry, Silver Tender, Keystone, Abdalla, Vanderbilt, Partman, Sioux, Cherokee, Eureka, New Hope, Everett, General Meade, Fairview, Madison, Constitution, Phœbus, Ravenswood, Ethan Allen, Emigrant, Nelly Jacobs, Marrow, Florence, Montrose, Excelsior, Belmont, Florida, Auction, Lizzie, Manhattan, Savage, Yankee Blade, Whitlach, Magnolia, Sachem, Seeley, Mineral Star, Augusta, Suspense, Nelly, Union, Wild Rover, Zora, Yellow Jacket, and Mammoth.

Garrity, Neely & Patten, Iowa Hill:
Specimens of gold bearing quartz.

Great Eastern, Shoshone County, Reese River:
Works one hundred dollars per ton.
Specimens contributed by B. B. Bee.

Manhattan Ledge, Reese River:
Samples of silver ore.

Seeley, Reese River, Lander County, Nevada Territory, exhibited specimens of silver ore from the following ledges: St. Nicholas, Oregon, Manhattan, Florida, Ashtabula, Union Number Two, Harding & Dirkman, Morgan & Munson, Seely, Sister Series, Monitor, Isabella, Marshall, New Hope, Ethan Allen, Magnolia, Blue Ledge, Tesoro, James River, Western Oregon, San Miguel, Governor Morton, Tom Benton, Beard & Seaver, Marengo, Lucretia, Florence, Fairview, Excelsior Ledge, Benjamin Franklin, J. J. Crittenden, Antimony, Otho, (eighty feet wide,) Diamond, Lemanthe, Smoky Valley, Mammoth, Yellow Jacket, Reese River, State, and Magnolia.

Belcher, Gold Hill, Nevada Territory:
Gold and silver quartz, three specimens.
Specimens donated by the company.

Potosi, Virginia District, Nevada Territory:
Two specimens.
Specimens donated by the company.

Gould & Curry, Virginia, Nevada Territory:
Six specimens gold and silver quartz.
Three specimens gold and silver from surface rock.

Gold Hill Proper, Gold District:
Sixteen specimens gold and silver.
Specimens donated by Coover & Stevenson.

Burning Moscow, Gold Hill:
Twelve specimens gold and silver quartz.
Specimens donated by the company.

Uncle Sam, Gold Hill District, Nevada Territory:
Twenty-three specimens gold and silver bearing quartz.
Specimens donated by the company.

Mexican or Spanish, Virginia, Nevada Territory:
Twelve specimens gold and silver quartz, most of them from about fifteen feet below the surface.
Specimens donated by the company.

La Platona, Gold Hill District:
Five specimens gold and silver rock.
Specimens donated by the company.

Pride of the West, Silver City District:
Five specimens croppings.

Real Del Monte, Palmyra District:
Four specimens gold and silver quartz.
Specimens donated by the company.

Orizaba Number One:
Five specimens gold and silver.
Specimens donated by the company.

Tecumseh, Palmyra District:
One specimen gold and silver; donated.

Orizaba Number Two:
Three specimens gold and silver ore; donated.

Weldon, Palmyra District, Nevada Territory:
One specimen gold and silver.

Whitman, three miles from Como, Nevada Territory:
One specimen silver ore.

Jesse, Palmyra District:
Specimen of gold ore.

Constitution Ledge, Palmyra District:
Four specimens gold and silver.

Silver King:
Specimen of gold and silver quartz.
Specimen donated by L. B. Harris.

Dios Padre Gold and Silver Mining Company, Alamos, Mexico:
Three specimens silver bearing rock.
Specimens donated by T. A. Talbert.

ENTRY OF LEAD, TIN, AND OTHER ORES.

Denver Quicksilver Mine, Sonoma County:
Samples of cinnabar rock.

From near Geysers, Sonoma County:
Volcanic formation of cinnabar.
Specimens contributed by A. C. Sweetzer.

Aurora, Mono County:
Specimens of soap stone.
Specimens contributed by George F. Long.

Cumberland District, Esmeralda County, Nevada Territory:
Vein three feet thick, dip thirty degrees west, course nearly northeast by southwest. There are large numbers of veins within an area of two miles square; formation, sandstone, slate, and gypsum; specimens thirty feet from the surface; distance from Aurora, sixteen miles.
Specimens of coal.

Rough Creek, Esmeralda County:
Vein twenty-three feet thick; course nearly northeast by southwest. There are two other veins within the distance of half a mile of the coal field. The vein outcrops to a height of five hundred feet above the bed of the creek; distance to Aurora, thirteen miles.
Specimens of iron.

Esmeralda County:
Specimens of gypsum.

Kundler's Quarry, Esmeralda County;
Specimens of building stone.
Specimens contributed by F. Garesche.

Hank Schram Lode:
Specimens of tin.
Fifteen miles from Aurora, near Mono Lake.
Specimens contributed by F. Garesche.

Volcanic rock, taken from the waters of Steamboat Springs, Nevada Territory.
Specimens contributed by Mrs. L. Frinck.

Cow Creek Silver Mines, Shasta County:
Specimens of silver and lead ore.
Specimens donated by M. D. Raum.

Cement rock, from the Benecia Cement Company.

Apache Chief Mine, La Paz, Arizona:
Specimens of native silver and copper.
Specimens contributed by Alonzo Margison.

American River, Placer County:
Specimens of alum.
Specimens contributed by H. A. Dana.

Galena District, Nevada Territory:
Specimens of lead ore.

Humboldt, Nevada Territory:
Specimens of sulphur.

COPPER MINING IN CALIFORNIA.

It was known before the gold discovery that there were mines of copper ores in some portions of the State, but until a very recent period it has never been suspected that mines of this metal were distributed all over the

country in such numbers and richness as to make the labor of raising and shipping the ores a lucrative business. Not only is it already a lucrative business, but after only three years of prospecting there have been many mines opened which have been sufficiently developed to establish their marvellous richness. Copper mining in our State has proved to be a branch of industry in which persons with limited means have been enabled to engage with flattering prospects of success, because the ores are found sufficiently rich to pay for shipment at a trifling distance below the surface; hence there need be only a small outlay of labor or capital before receiving returns by the sales of ores at San Francisco. It is reasonable to expect that in the course of the next year copper will comprise a very large item among the shipments of the metals from the Pacific coast.

There were fifty-four copper mining companies represented at this year's Fair, with a great variety of ores, and it is under, rather than over, the true number to state that there are already not less than three thousand copper claims recorded in the State. To open and work these mines to advantage requires a greater supply of labor than is now available, and cheaper transportation to tide water. The discoveries in this one interest during the past year are of sufficient magnitude to render the future of California what its most hopeful citizens could desire. Up to this time our copper miners have been obliged to ship their ores abroad for smelting, and as it is well known that most of these ores are rich in silver, and gold, and other mineral substances, their full value is not secured by those owning the mines. The time, however, is rapidly approaching when our copper miners will club together to erect works in California, or in the East, where fuel and labor is cheaper, so that by owning the works the proprietors of each mine will be able to obtain the results of an honest assay of their ores. Smelting works have been erected at Antioch, a very accessible point near the junction of the Sacramento and San Joaquin Rivers, for the partial reduction of ores; but these works are not intended to accomplish what is the great need—the separation and saving of all the valuable metals contained in the rock. When this shall have been done, there is little doubt but that our copper mines will yield marvellous returns on the capital invested in their development.

ENTRY OF SPECIMENS OF COPPER ORE.

Bull Run Copper Mining District, Calaveras County:
Specimens of ores taken from the ledge one hundred and fifty feet below the surface.

Higby & Company's Mine, Calaveras County:
Specimens from shaft fifty feet deep on side of ledge.

Copper Hill, Campo Seco District, Calaveras County:
Specimens from the surface of the ledge, and from a depth of two hundred feet. This claim is on the same lead as the Lancha Plana.

Prospect Mining Company, Calaveras County:
Specimens of surface ore.
Specimens contributed by J. B. McGilvery.

Campo Seco Mine, Calaveras County:
Specimens seventeen feet from the surface.

Massachusetts Mine, Calaveras County:
Specimens of croppings.

Copperopolis:
Specimens of ores.

Sailor Mine, Calaveras County:
Specimens of ores.
Specimens contributed by J. B. McGilvery.

Forty-Nine and Jefferson Mine, Calaveras County:
Croppings, and specimens from ledge at twenty feet deep.

Hawes & Company's Mine, Calaveras County:
Thirteen specimens taken from the south-west part of the copper belt.
Specimens contributed by J. B. McGilvery.

Campo Seco Mine, Calaveras County:
Seven samples of ores, taken from the surface to a depth of fifty feet.

Star of the West Lode Company, Blue Mountain District:
Specimens of croppings.

Cosumnes Mine, Sacramento County:
Specimens taken twenty, sixty, and eighty feet from the surface.
Specimens contributed by the company.

Eureka Mining Company, John Bull District:
Five samples at surface and from a depth of six feet.

Lancha Plana Mine, Amador County:
Eight samples, from croppings and to a depth of one hundred and seventy feet.

Newton Mine, Amador County:
Samples of ore at the surface, and from six points at a depth of one hundred and eighty feet.

Tear and Rip Mine, Bryant's Hotel, El Dorado County; discovered by John G. Smith; shaft forty-five feet deep; ore twenty-eight per cent:
Specimens A, B, C, D, E, and F, from surface down.

Chasen & Company, Shasta County, East Fork of Clark Creek, twenty-seven miles north-west of Shasta:
Specimens of copper ore.

New Sigel Copper Mining Company, Slug Gulch, El Dorado County:
Specimens from surface, and to a depth of forty-five feet; claim seven thousand two hundred feet long.
Specimens contributed by C. Heinrich.

Lebanon Mining Company, Garden Bar Mining District, Placer County:
Specimens fifty feet from the surface.

Ashby Stewart Mining Company, Garden Bar Mining District, Placer County:
Specimens of croppings.

Pioneer Copper Mining Company, Clark Creek, near Uniontown, El Dorado County:
Samples thirty-nine feet from the surface; assays thirty-four per cent of copper, and of gold three hundred and twenty-three dollars and seventy-six cents per ton.
Specimens contributed by J. H. Corliss.

Camp & McNulty, Hog Hill District.
Specimens.

Keystone Mine, Copperopolis, Calaveras County:
Specimens.

Kentucky Mine, Salt Spring Valley, four miles northwest of Copperopolis:
Specimens.

Empire Mine, Copperopolis:
Specimens.

Crocket Mine, three miles northwest of Copperopolis:
Specimens.

Suffolk Mine, Weehawken District, ten miles northwest of Copperopolis:
Specimens.

Table Mountain, four miles southeast of Copperopolis:
Specimens.

Superior Ledge, Light's Cañon, Plumas County; incorporated August eighteenth, eighteen hundred and sixty-three:
Specimens, sixty per cent.
Specimens donated by John Bidwell.

Cosmopolitan Ledge, Genessee Valley, Plumas County:
Specimens donated by John Bidwell.

San Diego Company, Bidwell's Bar, Butte County:
Specimens of croppings.
Specimens donated by R. T. Van Norden.

General Grant Copper Bottom Mining Company, Salmon Falls, El Dorado County, Ocean Township; ledge discovered August ninth, eighteen hundred and sixty-three.
Samples of ore four hundred feet above the river bed and from the river bed.

Uncle Abe Lead, one hundred feet east of the General Grant:
Samples of croppings.
Specimens contributed by the General Grant Company.

Pure Copper Company:
Samples contributed by R. Dale.

Well Copper Mining Company, Nevada County:
Samples of carbonates from surface, and ores from forty feet below.
Ledge thirty feet wide.

Bunker Hill Copper, and Gold, and Silver Mining Company, two miles from Greenwood, on the Sacramento Road, El Dorado County; width of lead two feet; discovered June tenth, eighteen hundred and sixty-three, by C. L. Rogers and M. Rumer; incorporated July, eighteen hundred and sixty-three; two thousand seven hundred feet in the claim:
Specimens from the surface and seven feet deep.
Samples donated by George E. Truman.

Last Chance Company, Nevada County:
Shaft fifty feet deep, with thirty per cent shipping ore.
Samples donated by J. M. Maguire, Manager and Trustee.

Diamond Lead, Del Norte County:
Samples from surface and forty feet deep.
Specimens contributed by F. Rabel.

Chaparral Lead, Boston Ranch, Amador County:
Samples from shaft fifty-five feet deep.
Specimens contributed by H. Waters.

Jane and Gilbert:
Samples from sixteen feet below surface; thirty-one per cent ore.
Specimens contributed by Mr. Wright.

Lingering Hope Company, Plumas County:
Samples contributed by B. F. Stewart.

Mogul Company, Ocean District, El Dorado County:
Specimens six feet below the surface.
Specimens contributed by E. C. Gilbert.

Exchange Copper Mining Company, Forest Home District, Amador County:
Samples from shaft thirty-three feet deep.
Specimens contributed by G. W. Donnelly.

Amador Lafayette Mining Company, Forest Home Mining District, Amador County:
Samples from shaft sixty-five feet deep.
Specimens contributed by G. W. Donnelly.

Enterprise Copper Mining Company, Placer County:
Samples contributed by Thomas S. Levy.

Gardiner Mining Company, Placer County:
Samples from surface to thirty feet deep.
Specimens contributed by T. S. Levy.

Wellington Mine, Placerville District, El Dorado County.
Specimens.

Roanoke Copper Mining Company, Illinoistown District, Placer County:
Five specimens of surface rock; ledge twelve to eighteen feet wide.
One specimen from Mundis Ledge, sixteen feet from surface.
Specimens donated by O. K. Levings.

Shepperd's, Nevada County:
One specimen copper ore.

Greer's, Nevada County:
Specimens.

Chollar, Nevada County:
One specimen copper ore.

Still House, Nevada County:
Two specimens copper ore.

Peavine Ranch Copper Ore, Nevada County:
Seven specimens copper ore.
One specimen bar copper.
Specimens donated by L. Lanszewert.

Barnard Ledge, Weaver District, Arizona:
Specimens donated by S. P. Taylor.

Blue Bell Ledge, Weaver District, Arizona:
Specimens donated by S. P. Taylor.

Byron, Weaver District, Arizona:
Specimens donated by S. P. Taylor.

PREMIUMS AWARDED 1863.

THOROUGHBRED STALLIONS.

Exhibitor.	Residence.	Animal.	Premium.
John Hall	Alameda	"Owen Dale," four years old and over	First, pitcher, $50
Nathan Coombs	Napa	"Ashland," four years old and over	Second, goblet, $20
Nathan Coombs	Napa	"Montezuma," three years old and over	First, goblet, $30
John Hall	Alameda	"California," three years old and over	Second, honorary diploma
J. C. Davis	Yolo	"M. S. Latham," one year old and over	First, goblet, $15
J. R. Redman	Marin	"Knight St. Patrick," under one year	First, cup, $10

THOROUGHBRED MARES.

J. R. Redman	Marin	"Fairy Queen" and colt, four years old and over	First, pitcher, $40
J. C. Davis	Yolo	"Rose Clifton" and colt, four years old and over	Second, pair goblets, $20
John Hall	Alameda	"Esperanza," three years old and over	First, ice bowl, $30
Nathan Coombs	Napa	"Fanny Bryer," three years old and over	Second, honorary diploma

GRADED STALLIONS.

Nathan Coombs	Napa	"Davy Crockett," four years old and over	First, pair goblets, $40
B. Cahoon	Sacramento	"Garibaldi," four years old and over	Second, honorary diploma
Wm. Ledgerwood	Solano	"Patriek Cheatham," three years old and over.	First, pair goblets, $20

Exhibitor.	Residence.	Animal.	Premium.
J. B. Harbin	Yolo	"Tiger Whip," three years old and over	Second, honorary diploma
Mike Bryte	Yolo	"Nick," two years old and over	First, goblet, $15
V. Barnes	Yolo	"Sea Breeze," one year old and over	First, cup, $10
Mike Bryte	Yolo	"No Name," one year old and over	Second, agricultural paper

GRADED MARES.

J. A. Price	Yolo	"Lizzie Dale," four years old and over	First, pair goblets, $30
Mike Bryte	Yolo	"Annie," four years old and over	Second, honorary diploma
D. H. Trinder	Yolo	"Annie Richards," three years old and over	First, goblet, $15
D. H. Trinder	Yolo	"Fanny Cheatham," two years old and over	First, cup, $10
B. Cahoon	Sacramento	"Fanny M. Kimble," two years old and over	Second, honorary diploma

HORSES OF ALL WORK—STALLIONS.

J. G. McCracken	Sacramento	"David Hill," four years old and over	First, pair goblets, $40
D. B. Sutton	Yolo	"Robert Dale Owen," four years old and over	Second, honorary diploma
M. Spragne	Sacramento	"Abe Lincoln," three years old and over	First, pair goblets, $20
C. W. Fairchild	Amador	"Black Hawk," three years old and over	Second, honorary diploma
A. F. Smith	Sacramento	"Prince Albert," two years old and over	First, goblet, $15
Benjamin Tibbits	Sacramento	"Eclipse," one year old and over	First, cup, $10

MARES OF ALL WORK.

C. F. Reed	Yolo	"Amanda Wallace," four years old and over	First, pair goblets, $30
Joseph Bauquier	Sacramento	"Dolly," four years old and over	Second, honorary diploma
C. F. Reed	Yolo	"Sally Miller," one year old and over	First, framed diploma

DRAFT HORSES.

S. Daniels	Sonoma	"California Chief," four years old and over	First, goblet, $30
R. S. Cary	Yolo	"Young Gilbert," four years old and over	Second, honorary diploma

Exhibitor.	Residence.	Animal.	Premium.
J. Sutherland	Amador	"Blucher," three years old and over	First, goblet, $15
David Dodd	Placer	"Young Wallace," three years old and over	Second, honorary diploma
H. Wilson	Sonoma	"Young America," two years old and over	First, cup, $10

DRAFT MARES.

Wm. Ledgerwood	Solano	"Puss Goldfinder," four years old and over	First, goblet, $15
C. F. Reed	Yolo	"Empress," four years old and over	Second, framed diploma

ROADSTER STALLIONS.

E. M. Skaggs	Sacramento	"Rattler, Jr.," four years old and over	First, pair goblets, $40
C. F. Reed	Yolo	"Black Eagle," four years old and over	Second, honorary diploma
J. D. Osborn	Sacramento	"Peacock," three years old and over	First, pair goblets, $20
William Allen	Solano	"Young Chrysopolis," three years old and over	Second, honorary diploma
Ed. St. Louis	Yolo	"Red Bird," two years old and over	First, goblet, $15
J. C. Davis	Yolo	"Jenny Clifton," two years old and over	Second, agricultural paper
Nathan Coombs	Napa	"Tarantula," one year old and over	First, cup, $10

ROADSTER MARES.

Ed. St. Louis	Yolo	"Fanny" and colt, four years old and over	First, pair goblets, $30
J. C. Davis	Yolo	"Lady Woolfskill," four years old and over	Second, honorary diploma
James Haworth	Marysville	"Lady Dillon," three years old and over	First, goblet, $15
J. C. Davis	Yolo	"Lady Clifton," three years old and over	Second, honorary diploma
J. C. Davis	Yolo	"Lady Woolfskill, Jr.," two years old and over	First, cup, $10
J. C. Davis	Yolo	"Chuckahilo," two years old and over	Second, honorary diploma
Joseph Labusier	Yolo	"Katy Hawkins," one year old	Framed diploma

CARRIAGE AND SADDLE HORSES.

Exhibitor.	Residence.	Animal.	Premium.
Thomas Maguire.....	San Francisco	"Abby Woods" and "Lady Utly," carriage.....	First, goblet, $20.....
Capt. J. Whitney....	San Francisco	Gray team, carriage.....	Second, honorary diploma.....
Thomas Maguire.....	San Francisco	"Abby Woods," single carriage.....	First, $20.....
B. E. Harris.....	Sacramento....	"Jack Clifford," single carriage.....	Second, framed diploma.....
J. M. Hubbard.....	Sacramento....	"Dusty Bill," in saddle.....	First, goblet, $20.....
B. E. Harris.....	Sacramento....	"Jake," in saddle.....	Second, framed diploma.....

SWEEPSTAKES—HORSES.

C. F. Reed.....	Yolo.....	"Black Eagle" and family....	First, pitcher, $50.....
C. F. Reed.....	Yolo.....	"Empress," best mare.....	First, goblet, $20.....
D. B. Sutton.....	Yolo.....	"Robert Dale Owen," best stallion	First, pitcher, $40.....

JACKS AND MULES.

J. C. Davis.....	Yolo.....	"Black Warrior," jack.....	First, goblet, $20.....
R. Y. McElroy.....	.....	"Stephen A. Douglas," jack	Second, honorary diploma.....
Thomas Edwards....	Sacramento....	"Lady Franklin," jenny, one year old.....	First, goblet, $15.....
Thomas Edwards....	Sacramento....	"Lady Washington," jenny, four years old.....	Second, agricultural paper.....

PURSES FOR SPEED.

Exhibitor.	Residence.	Name of Horse.	Character of Race.	Premium
C. H. Shears.....	San Francisco.	"Alicia Mandeville"....	Trotting Race.....	$75 00
B. E. Harris.....	Sacramento....	"Tony Oaks".....	Mile heats, 2 in 3, trotting	100 00
C. H. Burger.....	Sonoma.....	"Pilot Boy".....	Mile heats, 2 in 3, running	100 00
John Kelly.....	San Francisco.	"Fanny Lent".....	Mile heats, 3 in 5, trotting	50 00
H. R. Covey.....	San Francisco.	"Jim Barton".....	Mile heats, 3 in 5, trotting	Pr. gob's $200 00
Vincent Barnes.....	Yolo County...	"Didapper".....	Mile heats, 2 in 3, running	50 00
Wm. B. Campbell...	Butte County..	"Young Lightning"...	Mile heats, 2 in 3, pacing..	200 00
James Merritt.....	.....	.....	2-mile heats, 2 in 3, running	300 00
J. L. Eoff.....	San Francisco.	"Honest Ance".....	2-mile heats, 2 in 3, trotting	300 00
J. Sessions.....	San Francisco.	.....	1 mile, trotting.....	100 00
S. Card.....	San Francisco.	.....	Double team.....	300 00

SHORT HORN BULLS.

Exhibitor.	Residence.	Animal.	Premium.
Thomas Bedford	Colusa	"Shasta," four years old and over	First, pitcher, $40
Torry & Fagan	Napa	"Herald the Sixth," four years old and over	Second, goblet, $20
J. D. Patterson	Alameda	"Duke of Airdrie," three years old and over	First, pair goblets, $30
Clark & Cox	Placer	"George," three years old and over	Second, honorary diploma
Milton Dale	Yolo	Calf, under one year old	First, cup, $10

SHORT HORN COWS.

Milton Dale	Yolo	"Mary Jane," four years old and over	First, cup, $25
J. C. Davis	Yolo	"Bracelet," four years old and over	Second, honorary diploma
J. C. Davis	Yolo	"Alice," two years old and over	First, cup, $15
J. C. Davis	Yolo	"Annie Stevenson," 1 year old and over	First, goblet, $10
J. C. Davis	Yolo	"Clara," one year old and over	Second, agricultural paper

DEVONSHIRE BULLS.

S. Daniels	Sonoma	"Medoe," four years old and over	First, pitcher, $40
S. Daniels	Sonoma	"Pacific," three years old and over	First, goblet, $30
S. Daniels	Sonoma	"Oakland," one year old and over	First, goblet, $20
S. Daniels	Sonoma	"McClellan," one year old and over	Second, honorary diploma

DEVONSHIRE COWS.

S. Daniels	Sonoma	"Lassie," four years old and over	First, cup, $25
S. Daniels	Sonoma	"Fashion," four years old and over	Second, honorary diploma
S. Daniels	Sonoma	"May Queen," three years old and over	First, cup, $20
S. Daniels	Sonoma	"Beauty," three years old and over	Second, honorary diploma
S. Daniels	Sonoma	"Maud," two years old and over	First, cup, $15
S. Daniels	Sonoma	"Lassie, Jr.," one year old and over	First, goblet, $10
S. Daniels	Sonoma	"Fashion, Jr.," one year old and over	Second, agricultural paper

ALDERNEY BULLS AND COWS.

Exhibitor.	Residence.	Animal.	Premium.
J. D. Patterson	Alameda	"Albert," three years old and over	First, pitcher, $40
J. D. Patterson	Alameda	Calf, less than one year old	Goblet, $10
J. D. Patterson	Alameda	"Diana," three years old and over	First, cup, $20

AYRSHIRE BULLS AND COWS.

S. Daniels	Sonoma	"Walter," four years old and over	First, pitcher, $40
S. Daniels	Sonoma	"Nena," three years old and over	First, cup, $20

SWEEPSTAKES—CATTLE.

S. Daniels	Sonoma	Best herd, one bull and five cows, Devons	First, pitcher, $50
S. Daniels	Sonoma	Best herd, six animals, California dropped	First, goblet, $40
Thos. Bedford	Colusa	Best bull, "Shasta," any age	First, goblet, $40
Milton Dale	Yolo	Best cow, "Mary Jane," any age	First, goblet, $40

GRADED BULLS.

J. C. Davis	Yolo	"Joe,"	First, goblet, $25
J. C. Davis	Yolo	"Red Jacket"	Second, honorary diploma
J. C. Davis	Yolo	White Bull, one year and over	First, goblet, $10
J. C. Davis	Yolo	Roan Bull, one year and over	Second, honorary diploma

GRADED COWS.

Milton Dale	Yolo	"Verona," four years old and over	First, goblet, $20
J. C. Davis	Yolo	"Lilly," four years old and over	Second, honorary diploma
Milton Dale	Yolo	"Loland," less than one year old	Second, agricultural paper
J. C. Davis	Yolo	"Snow Ball," three years old and over	First, goblet, $15
Milton Dale	Yolo	"Dixie," one year old and over	First, goblet, $10
J. C. Davis	Yolo	"Mary," one year old and over	Second, honorary diploma
Milton Dale	Yolo	"Rosa," two years old and over	First, goblet, $10
J. C. Davis	Yolo	"Julia" and calf, two years old and over	Second, honorary diploma

SPANISH MERINO BUCKS.

Exhibitor.	Residence.	Animal.	Premium.
J. D. Patterson	Alameda	Buck	First, goblet, $20
Bachelder & Cotter.	Sacramento	Buck	Second, honorary diploma
McConnell & Curtis	Sacramento	Buck one year old	First, cup, $10
McConnell & Curtis	Sacramento	Buck one year old	Second, honorary diploma
McConnell & Curtis	Sacramento	Three buck lambs	First, framed diploma
Bachelder & Cotter.	Sacramento	One buck lamb	First, framed diploma

SPANISH MERINO EWES.

J. B. Hoyt	Solano	Five ewes two years old and over	First, goblet, $15
J. B. Hoyt	Solano	Five ewes one year old and over	First, framed diploma
J. B. Hoyt	Solano	Five ewe lambs	First, framed diploma

FRENCH MERINO BUCKS.

J. D. Patterson	Alameda	Buck two years old and over	First, goblet, $20
J. D. Patterson	Alameda	Buck two years old and over	Second, framed diploma

SOUTHDOWN BUCKS.

J. D. Patterson	Alameda	Buck two years old and over	First, goblet, $20

LEICESTERSHIRE EWES.

J. C. Davis	Yolo	Five ewes two years old and over	First, goblet, $15

SWINE—CROSS BREEDS.

Thomas Edwards	Sacramento	Best boar, one year old and over	Framed diploma

SWEEPSTAKES—SWINE.

J. S. Curtis	Yolo	Best sow	Cup, $10

POULTRY.

Exhibitor.	Residence.	Article.	Premium.
R. Thompson	Placer	Best exhibit Black Spanish	Agricultural paper
Maurice E. Hoag		Best exhibit Sumatra	Brown's American Poultry Yard
H. S. Beals		Best exhibit Japanese	First, agricultural paper

VEGETABLES.

Geo. E. Coggshall	Sacramento	Best Irish potatoes	Agricultural paper
Geo. E. Coggshall	Sacramento	Best watermelons	Agricultural paper
Geo. E. Coggshall	Sacramento	Best muskmelons	Agricultural paper
Geo. E. Coggshall	Sacramento	Best egg plant	Agricultural paper
Geo. E. Coggshall	Sacramento	Best turnips	Agricultural paper
C. G. Hidden	Sacramento	Best squashes	Agricultural paper
P. Nolan	Sacramento	Best onions	Agricultural paper
Thomas Edwards	Sacramento	Best carrots	Agricultural paper
E. Pierce	Sacramento	Best corn	Agricultural paper
J. S. Curtis	Yolo	Best peanuts	Agricultural paper
D. Megowan	Yolo	Best cabbage	Agricultural paper
D. Megowan	Yolo	Best tomatoes	Agricultural paper
D. Megowan	Yolo	Best beets	Agricultural paper
J. R. Nickerson	Placer	Best sweet potatoes	Agricultural paper

HOME WORK.

B. N. Bugbey	Folsom	Best exhibit raisins	Honorary diploma
J. R. Nickerson	Placer	Second best exhibit raisins	Agricultural paper
J. R. Nickerson	Placer	Best exhibit dried fruit	Napkin ring, $5
Miss M. N. Crocker	Sacramento	Second best exhibit dried fruit	Napkin ring, $4
Miss M. N. Crocker	Sacramento	Best exhibit jellies	Napkin ring, $4
Miss M. N. Crocker	Sacramento	Best exhibit preserves	Napkin ring, $4
Mrs. N. L. Drew	Sacramento	Best exhibit catsup	Napkin ring, $4
A. Bergman	Sacramento	Best exhibit pickles	Napkin ring, $4
C. G. Hidden	Sacramento	Best exhibit hops	Agricultural paper

GENERAL FARM PRODUCTS.

J. R. Nickerson	Placer	Best exhibit	Framed diploma

MANUFACTURES.

Thomas Hansbrow	Sacramento	Best force pump	Framed diploma
J. L. Morrill	Sacramento	Best lifting pump	Framed diploma
C. H. Harrison	San Francisco.	Best eccentric steam force and lifting pump	Creamer, $20
T. McKim	Sacramento	Best steam engine	Goblet, $40
Mrs. M. A. Ames	Sacramento	Best millinery	Cup, $10
D. Norcross	San Francisco.	Best fringe	Framed diploma
D. Norcross	San Francisco.	Best regalia	Framed diploma

Exhibitor.	Residence.	Article.	Premium.
J. M. Griswold	Sacramento	Unfermented bread	Napkin ring, $1
Stockton & Coover	Folsom	Best flour	Framed diploma
Stockton & Coover	Folsom	Best corn meal	Framed diploma
E. M. Smith	Folsom	Best soda crackers	Framed diploma
J. R. Nickerson	Placer	Best buckwheat flour	Framed diploma
Thomas Varney	San Francisco	Amalgamating pans	Goblet, $15
E. Hughes	Santa Clara	Eyeless mining pick	Framed diploma
E. Hughes	Santa Clara	Safety blasting fuse	Framed diploma
A. Aitkin & Co	Sacramento	Best marble monument	Goblet, $20
A. Aitkin & Co	Sacramento	Second best marble monument	Framed diploma
A. Aitkin & Co	Sacramento	Best centre piece	Book
A. Aitkin & Co	Sacramento	Best statuette	Book
A. Aitkin & Co	Sacramento	Best exhibit in marble	Honorary diploma
I. Ireland	Sacramento	Best brooms	Framed diploma
E. Moulthorp	Sacramento	Best churn	Framed diploma
H. T. Graves	San Francisco	Best wire work	Honorary diploma
H. T. Graves	San Francisco	Best bird cages	Framed diploma
A. S. Halladie	San Francisco	Best wire rope	Framed diploma
J. S. Harbison	Sacramento	Best bee hive	Agricultural paper
H. Tubbs	San Francisco	Best rope	Framed diploma
Kelly, Mott & Co	Sacramento	Best tin work	Framed diploma
A. Lamott	Sacramento	Best hats	Framed diploma
Nash & Fogg	Stockton	Best boots and shoes	Framed diploma
F. Rabel	Sacramento	Best leather	Framed diploma
Parker & Perry	Sacramento	Best team harness	Framed diploma
Hiram Cook	Sacramento	Best gentlemen's saddles	Framed diploma
Hiram Cook	Sacramento	Best ladies' saddle	Framed diploma
J. B. Hoyt	Solano	Best wool	Framed diploma
C. F. Cook	San Francisco	Best soap	Framed diploma
P. Franklin	Sacramento	Best cigars	Framed diploma
J. R. Nickerson	Placer	Best bacon	Framed diploma
Mrs. E. F. Aikin	Sacramento	Best butter	Spoons, $10
Frink & Allsop	Sacramento	Second best butter	Book
Frink & Allsop	Sacramento	Best cheese	Spoons, $10
B. H. Hoag	Napa	Best honey	Agricultural paper
J. S. Harbison	Sacramento	Second best honey	Agricultural paper
J. Phillips	Sacramento	Best confectionery	Framed diploma
R. K. Wick	Sacramento	Best mining picks	Framed diploma

AGRICULTURAL IMPLEMENTS.

Baker & Hamilton	Sacramento	Best header	Goblet, $20
W. H. Jackson	Sacramento	Best windmill	Framed diploma
J. Dickerson	Sacramento	Second best windmill	Agricultural paper
Cronkite & Beebe	Sacramento	Best gang plough	Goblet, $15
W. B. Ready & Bro.	Sacramento	Second best gang plough	Agricultural paper
George Kelton	Mokelumne	Best harrow	Framed diploma
Cronkite & Beebe	Sacramento	Best plough	Framed diploma
Cronkite & Beebe	Sacramento	Best cultivator	Framed diploma
S. Stevens	Sacramento	Best hay press	Framed diploma

CARRIAGES & WAGONS.

H. M. Bernard	Sacramento	Best family carriage	Goblet, $30
H. M. Bernard	Sacramento	Best rockaway	Cup, $20
H. M. Bernard	Sacramento	Best top buggy	Cup, $20
H. M. Bernard	Sacramento	Best freight wagon	Goblet, $20
H. M. Bernard	Sacramento	Best exhibit	Honorary diploma

SILK COCOONS.

Exhibitor.	Residence.	Article.	Premium.
L. Provost	San José	Best cocoons	Napkin rings, $10

FURNITURE AND PIANOFORTES.

Goodwin & Co	Sacramento	Best exhibit furniture	Honorary diploma
Frederick Zech	San Francisco	Best pianoforte	Framed diploma

PHOTOGRAPHS AND PAINTINGS.

W. Dickerman	Sacramento	Best life size photograph	Framed diploma
W. Dickerman	Sacramento	Best small size photograph	Framed diploma
H. S. Beals	Sacramento	Best photograph, re-touched India ink	Goblet, $15
W. C. Felch	Sacramento	Best landscape in oil	Goblets, $30

MISCELLANEOUS.

Miss A. Smith	Marysville	Best leather work	Spoons, $7 50
Mrs. Mary L. Foster	Sacramento	Leather work	Napkin ring, $5
M. J. W. Winans	San Francisco	Best wax flowers	Napkin ring, $7 50
Taylor & Bishop	Sacramento	Best penmanship	Framed diploma
Miss Emma Aveline	Folsom	Penmanship	Book
Mrs. Julia Bayer	Sacramento	Best bead work	Spoons, $7 50
J. Q. A. Warren	San Francisco	Best printing	Framed diploma

EMBROIDERY AND CROCHET.

Wilhelm Windmiller	Sacramento	Best cotton embroidery	Napkin ring, $5
Miss E. Spaulding	Sacramento	Cotton embroidery	Second, napkin ring, $4
Miss Louisa Myers	Sacramento	Best worsted embroidery	Floral dictionary
Mrs. Julia Bayer	Sacramento	Worsted embroidery	Second, floral dictionary
Mrs. P. Cadue	Sacramento	Best silk embroidery	Second, floral dictionary
D. Norcross	San Francisco	Best gold and silver embroidery	Framed diploma
Mrs. Julia Bayer	Sacramento	Best knitting	Floral dictionary
Mrs. W. Headinberg	Sacramento	Best crochet work	Floral dictionery
Miss Jenny Dreman	Sacramento	Best crochet of girl under fourteen years of age	Cup, $10
Miss Mary E. Drew	Sacramento	Second best crochet of girl under fourteen years of age	Napkin ring, $5

FRUIT.

GRAPES.

Exhibitor.	Residence.	Article.	Premium.
Samuel Rich	Sacramento	Best one variety	Agricultural paper
J. R. Nickerson	Placer	Greatest number of varieties	Honorary diploma
A. Gaffnesch	Sacramento	Best twenty varieties	Haraszthy's Wines of Europe.
A. Gaffnesch	Sacramento	Best six varieties	Agricultural paper
J. R. Nickerson	Placer	Best twelve varieties.	Agricultural paper
Mark Hopkins	Sacramento	Best native	Agricultural paper
J. R. Nickerson	Placer	Greatest number nat. varieties.	Haraszthy's Wines of Europe.

APPLES.

J. R. Nickerson	Placer	Greatest number of varieties	Cup, $10
A. S. Greenlaw	Sacramento	Second greatest number of varieties	Agricultural paper
A. Runyon	Sacramento	Best twenty varieties	Framed diploma
J. M. B. Wetherwax	El Dorado	Second best twenty varieties	Agricultural paper
G. H. Tilley	Sacramento	Best twelve varieties	Framed diploma
C. W. Reed	Yolo	Second best twelve varieties	Agricultural paper
A. Runyon	Sacramento	Best six varieties	Framed diploma
G. E. Coggshall	Sacramento	Second best six varieties	Agricultural paper

PEARS.

J. R. Nickerson	Placer	Greatest number of varieties	Cup, $10
Sanderson & Bro.	San José	Second greatest number of varieties	Agricultural paper
C. W. Reed	Yolo	Best twelve varieties	Framed Diploma
J. M. B. Wetherwax	El Dorado	Best six varieties	Framed Diploma
A. S. Greenlaw	Sacramento	Second best six varieties	Agricultural paper

PEACHES.

H. Davis	Dutch Flat	Greatest number of varieties	Framed diploma
J. R. Nickerson	Placer	Second greatest number of varieties	Agricultural paper

PLUMS.

J. R. Nickerson	Placer	Greatest number varieties	Framed diploma
H. Davis	Dutch Flat	Second greatest number varieties	Agricultural paper
W. C. Felch	Sacramento	Best one variety	Fruit knife

QUINCES.

Exhibitor.	Residence.	Article.	Premium.
J. R. Nickerson	Placer	Best quince	Haraszthy's Wines of Europe.

SEEDS.

John Adamson		Best Wheat	Agricultural paper
Thomas Milgate	Sacramento	Best twelve ears of corn	Agricultural paper
Thomas Milgate	Sacramento	Best white beans	Agricultural paper

FLOWERS AND BOUQUETS.

Mrs. Mark Hopkins	Sacramento	Best bouquets	Cup, $15
D. DeBernarde	Sacramento	Second best bouquets	Napkin Ring, $5

WINES.

WHITE STILL.

Kohler & Frohling	San Francisco	Best, four years old and over	Framed diploma
Kohler & Frohling	San Francisco	Second best, four years old and over	Haraszthy's Wines of Europe.
Martin Allhoff	Coloma	Best, three years old and over	Framed diploma
J. T. Godfrey & Co.	San Francisco	Second best, three years old and over	Haraszthy's Wines of Europe.
Dr. J. Strentzel	Martinez	Best, two years old and over	Framed diploma
J. T. Godfrey & Co.	San Francisco	Second best, two years old and over	Haraszthy's Wines of Europe.
Dr. J. Strentzel	Martinez	Best, one year old and over	Framed diploma
S. F. Sehall	Anaheim	Second best, one year old and over	Haraszthy's Wines of Europe.

CHAMPAGNE.

Buena Vista Vinticultural Associa'n	Sonoma	Best champagne	Honorary diploma

RED.

Kohler & Frohling	San Francisco	Best red, four years old and over	Framed diploma
Kohler & Frohling	San Francisco	Second best red, four years old and over	Haraszthy's Wines of Europe.
J. T. Godfrey & Co.	San Francisco	Best red, three years old and over	Framed diploma
Buena Vista Vinticultural Associa'n	Sonoma	Best red, one year old and over	Framed diploma

Exhibitor.	Residence.	Article.	Premium.
B. N. Bugbey	Folsom	Second best red, one year old and over	Haraszthy's Wines of Europe.
B. N. Bugbey	Folsom.	Best red, two years old and over	Framed diploma
J. T. Godfrey & Co.	San Francisco	Second best red, two years old and over	Haraszthy's Wines of Europe.

WINES OF FOREIGN GRAPES.

Martin Allhoff	Coloma	Best exhibit	Cup, $15
Dr. J. Strentzel	Martinez	Second best exhibit	Haraszthy's Wines of Europe.
Kohler & Frohling	San Francisco	Best exhibit vintages and ages	Honorary diploma
Buena Vista Vinticultural Associa'n	Sonoma	Second best exhibit vintages and ages	Haraszthy's Wines of Europe.

CATAWBA.

Dr. J. Strentzel	Martinez	Best Catawba	Special, framed diploma

ORCHARDS AND VINEYARDS.

L. H. Bascom	Santa Clara	Best orchard over twenty acres	Honorary diploma
Jared Runyon	Sac. River	Best orchard over one acre	Honorary diploma
D. T. Adams	San José	Second best orchard over one acre	Agricultural paper.
O. C. Wheeler	Sacramento	Best fruit garden	Honorary diploma
Buena Vista Vinticultural Associa'n	Sonoma	Best vineyard over ten thousand vines	Honorary diploma
M. D. Cully	Sacramento	Second best vineyard over ten thousand vines	Agricultural paper
W. C. Hopping	Sacramento	Best vineyard under five thousand vines	Honorary diploma
Martin Allhoff	Coloma	Best vineyard of foreign vines over five thousand	Honorary diploma
L. E. Miller	Rattlesnake Bar	Second best vineyard of foreign vines over five thousand	Agricultural paper

NURSERIES.

C. W. Reed	Yolo	Best fruit nursery	Honorary diploma
Wm. O'Donnell	San José	Best ornamental nursery	Honorary diploma
Sanderson & Bro	San José	Best timber nursery	Agricultural paper
L. H. Bascom	Santa Clara	Best hedge fence	Framed diploma
William Scott	Sacramento	Second best hedge fence	Agricultural paper

FIELD CROPS.

Exhibitor.	Residence.	Article.	Premium.
Isaac Bird	San José	Best acre potatoes	Framed diploma
Isaac Bird	San José	Best ten acres tobacco	Honorary diploma
James Kile	Woodbridge	Second best ten acres tobacco	Agricultural paper
Jackson & Johnson.	Sacramento	Best five acres cotton	Honorary diploma
H. M. Hoyt	Sacramento	Best four acres tobacco	Framed diploma

FLOUR MILL.

Stockton & Coover	Folsom	Best flour mill	Framed diploma

SPECIAL PREMIUMS, Etc.

Mrs. H. N. Fullan	San Francisco.	Best cone and shell work	Napkin ring, $4
Miss L. C. Baldwin	Marysville	Best hair jewelry	Cup, $20
August Kohler	San Francisco.	Best trusses and shoulder braces	Framed diploma
Adolph Kohler	San Francisco.	Best exhibit of furs	Framed diploma
Crosby & Page	San Francisco.	Best steneil plates	Framed diploma
S. F. Fregazi	Marysville	Best perfumery	Framed diploma
U. C. Simmons	Colusa	Best mineral water	Framed diploma
Miss'n Woolen Mills	San Francisco.	Best woollen goods	Framed diploma
Mrs. H. Adams	Sacramento	Best seaweed and shell work	Cup, $10
G. Pfaff	San Francisco.	Best flutes and piccolo	Framed diploma
Lord, Holbrook & Co	Sacramento	Best copper work	Framed diploma
Gruhler & Co	Sacramento	Best lager beer	Framed diploma
A. Bergman	Sacramento	Best wine vinegar	Framed diploma
Justin Gates & Bros.	Sacramento	Best perfumery and medicines	Framed diploma
R.H. McDonald & Co	Sacramento	Best surgical instruments	Framed diploma
H. Bowman	Sacramento	Best California prepared medicines	Framed diploma
Mrs. W. E. Brown	Sacramento	Pastel paintings	Goblet, $10
Mrs. J. K. Brown	Sacramento	Herbarium of California flowers	Napkin ring, $5
John Denn	Sacramento	Wine press	Framed diploma
J. D. Card	San Francisco.	Tire upsetter	Framed diploma
Jacob Zech	San Francisco.	Grand piano	Framed diploma
W. E. Bussey	San Francisco.	Car coupling	Framed diploma
Harms & Palm	Yolo	Chickory	Agricultural paper
John Mason	San Francisco.	Ale and porter	Framed diploma
J. M. Horner	Santa Clara	Washing machine	Framed diploma
S. E. Phelps	San Francisco.	Clothes wringer	Framed diploma
Warren Holt	San Francisco.	School desks	Framed diploma
Kimball & Co	San Francisco.	Model truck	Framed diploma
Baker & Hamilton	Sacramento	Corn and barley mill	Framed diploma
Miss Addie E. Crites	Sacramento	Plain sewing	Napkin ring
John Taylor, Agent	San Francisco.	Glass ware	Framed diploma
Mrs. C. Clark, Agent	Deaf, Dumb, & Blind Asylum.	Crochet work, embroidery, etc.	Ice bowl, $30
Miss F. Atherton	Sacramento	Hair wreath	Napkin ring
J. R. Nickerson	Placer	Best hams	Framed diploma
J. R. Nickerson	Placer	Best lard	Framed diploma
J. R. Nickerson	Placer	Best peas	Framed diploma
J. R. Nickerson	Placer	Best farm, 160 acres	Framed diploma
Miss N. Reynolds	Vacaville	Hair work	Napkin ring

ESSAYS.

Exhibitor.	Residence.	Subject.	Premium.
William Daniels.....	San José.....	Best essay on "The Culture of the Vine".....	Pair cups, $20 .....
Thomas Edwards....	Sacramento....	Best essay on "The Cultivation of Tobacco".....	Pair cups, $20 .....
James E. Perkins ...	San Francisco.	Best essay on "Sheep Husbandry".....	Pair cups, $20 .....
Sacramento Union...	Sacramento....	Best report of the Fair.....	Diploma.....

SHEEP HUSBANDRY IN CALIFORNIA.

BY JAMES E. PERKINS,

SECRETARY CALIFORNIA WOOL GROWERS' ASSOCIATION.

FOR WHICH THE FIRST PREMIUM WAS PAID.

Among the many industrial pursuits that have attracted the capital and occupied the attention of agriculturists in this State, none have shown a more rapid expansion, or held a better prospective position than that of sheep raising and wool growing. Already its results figure largely in the list of our export values, and it bids fair to become at no very distant day a leading source of our agricultural wealth.

Of all the animals given by a wise and provident Creator for the use and service of mankind, perhaps no other has contributed so largely to his comfort and to his wealth as the sheep. Certainly none figure more prominently in history as constantly accompanying the human race in its successive migrations. This prominence might justly be accorded to it from the readiness with which it is domesticated, its rapid increase, and the supply afforded by it both to satisfy the cravings of hunger and to furnish needed raiment.

The object of this paper is to call attention to the progress of wool growing on this coast, to point out some of the inducements for expanding the business, and the chief disadvantages which must be overcome before our wool product can command a first class position in the great markets of the world.

With the origin of the various breeds of sheep of the present day we do not propose to spend any time, as such researches, however interesting to the curious in such matters, will have but an incidental bearing on our subject.

The writer also desires to state, in the beginning, that his views are submitted as the result of his own observation, and with the hope of promoting those inquiries and that comparison of views by which alone the experience of each may be made to subserve the interest of all.

In passing to the special subject of this paper it may be well to look for a moment at the value of the sheep as a food providing animal.

Animal chemistry assigns to the flesh of the sheep the highest place, as compared to the amount of nutritive matter contained in the flesh of various animals. It contains twenty-nine parts in the one hundred, beef twenty-six, and pork twenty-four, and is therefore better than beef as twenty-nine is to twenty-six, and better than pork as twenty-nine is to twenty-four—and certainly no animal food is more easy of digestion or better adapted to the wants of all classes. With this preponderance in favor of mutton as an article of food, the queston arises, why does it not occupy a more prominent position as compared with the flesh of other animals?

An eminent writer on sheep says on this subject: "Notwithstanding all that has been said and written of the 'roast beef' of Old England, mutton is more eaten there by people of every rank. On the other hand, it is evidently not a favorite meat in the United States, though its proportionable consumption is evidently increasing. Whence the difference? Circumstances have led to habit, and habit in a great measure regulates appetite."

However it may be in other parts of the United States, we are confident that the consumption of mutton in our own State, at least in the more populous cities, is steadily increasing, not only absolutely, but relatively to the increasing consumption of other meats, and that our farmers can at all times raise mutton quite as cheaply as they can raise beef; indeed, that a price that would barely cover the cost of the latter would yield a good profit to the former.

But however serviceable to man as a food producing animal, the chief value of the sheep is in its capacity to produce material for clothing, and in this field no other animal can take its place. It is true that the goat, the alpaca, the llama, and some other animals, contribute to a limited extent material for the covering of man; but none of them afford a fibre so admirably adapted for clothing purposes by its softness, pliability, strength, and peculiar felting property, nor in such abundance.

The design of the Creator in giving this animal to our uses seems further and more strikingly indicated by the capacity with which he has endowed it to adapt itself to every climate, and to appropriate to itself a wider range of grasses than any other domesticated animal—with perhaps the single exception of the goat—thus enabling it to thrive on soils that would be otherwise almost useless, and to accompany the human race to almost every portion of the earth.

For several years after the settlement of this State, the opinion prevailed very generally that sheep could not be raised here to any profit for their wool. It was argued that the extreme heat of the summer, and the dry feed on which they must subsist for a large part of the year, would tend to produce a fleece so thin and light as scarcely to pay for shearing. Under this impression, those who owned or purchased sheep looked only to the market for mutton for their outlet and profit.

Scarcely anything but the native or New Mexican sheep could be found, and these, worthless as they were, were still further debased by crossing with some Chinese rams which were imported about the year eighteen hundred and fifty-two or eighteen hundred and fifty-three. The only recommendation either of these classes of sheep possessed was their prodigious fecundity, the ewes often bearing triplets, almost invariably twins, and sometimes five, and even seven lambs at a birth. In size, form, constitutional vigor, and disposition, they presented the perfection of all that is undesirable, while their fleeces rarely exceeded two or two and a half pounds of coarse, uneven, kempy wool, suited only to the lowest class

of fabrics, and scarcely worth the cost of sacking and transporting to market. Yet it is from this basis that our stocks of the present day have mainly sprung, and we owe to it the demonstration of the suitability of our climate and grasses for the raising and keeping of the superior classes to which we are now approaching.

During the years eighteen hundred and fifty-two, eighteen hundred and fifty-three, and eighteen hundred and fifty-four, quite a number of Missouri, and a few Ohio sheep, were driven across the plains; and toward the latter of those years some fine importations of Australian sheep were received, all of which found ready sale at remunerative prices. Most sheep raisers who have been long in the business can well remember when the possession of a very ordinary American ram was considered a most fortunate thing, and half-breeds, (*i. e.*, crosses of American rams on the Mexican ewes,) were eagerly sought for.

The immense increase of sheep raised in the State, and the continual introduction of immense droves from New Mexico, very shortly brought the stock of mutton sheep fully up to the demand from the butchers, and threatened at no distant time to be so largely in excess as to reduce prices far below the cost of production. As early as the year eighteen hundred and fifty-four, some of our most enterprising sheep raisers anticipated this result, and believing that a climate and range on which the poorer breeds seemed to thrive so well must answer equally as well for the higher classes of wool producing sheep, and that sheep could be raised here for the fleece alone, set about the importation of the thoroughbred merino rams of Vermont and New York. To Messrs. Curtis & McConnell, of Sacramento County, belongs the credit of the first importation of the Vermont, or generally designated Spanish merino. Both these gentlemen are now dead, but they lived to see and reap the fruits of their foresight. Other importations of both French and Spanish merino stocks rapidly followed, as also of Cotswold, Leicester, and Southdowns. Large numbers of Australian rams and ewes were brought in, and all found ready sale at extreme prices. Before the year eighteen hundred and sixty, there was scarcely a flock in the State that had not some infusion of improved blood from these importations, and the character of California wools began to exhibit a percentage of improvement scarcely less than the increase in quantity, until at the present time an unmixed flock of native sheep is by far more rarely met than were improved flocks in the year eighteen hundred and fifty-six.

A glance at our estimated wool clip for the past ten years will show the rapid increase, and the important position already attained, viz:

ESTIMATED PRODUCT OF WOOL IN POUNDS.

1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.
175,000	360,000	600,000	1,100,000	1,428,351	2,378,250	3,260,000	4,600,000	5,530,000	6,857,109

In eighteen hundred and fifty, the census reported our wool product at about five thousand pounds; but it was not until eighteen hundred and fifty-four that it attained sufficient magnitude to obtain notice in the list of exports. That year we shipped one thousand one hundred and twenty-seven bales. The following table shows the extent in bales of our exports for each year since, viz:

EXPORT OF WOOL IN BALES.

1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.
2,487	3,924	6,664	6,496	10,570	12,082	15,984	22,113	18,146

A considerable portion of the wools shipped this year have been in pressed bales, weighing from five hundred to eight hundred pounds each —the ordinary bales used heretofore averaging from two hundred and fifty to three hundred pounds each.

Of the entire export up to the year eighteen hundred and fifty-six, probably nine tenths was of the native breed, originally poor enough, and sent forward in such abominable condition as still further to depress it in the estimation of dealers and manufacturers; and prejudices were then formed against California wools from which they have not yet recovered.

The rapid increase of our exports of wool is beginning to attract the notice of Eastern manufacturers, and already California is looked to for a respectable portion of the yearly supply.

Is any increase of our product of wool that we may reasonably anticipate likely to increase the product of the United States beyond the amount required for our domestic manufactures? A correct knowledge of the annual product of the United States is essential to any satisfactory conclusion on this point. In California, sooner or later, the entire wool crop must pass through San Francisco, either for shipment abroad or for use in our own factories; hence it is comparatively easy to arrive at the exact annual product of the State. But there is scarcely another State in the Union so situated, and one main dependence for the desired information is upon the census returns. The statistics of agriculture are always difficult to arrive at with precision, and it would be strange if there were no discrepancies in details. The statistics of manufactures are, however, readily attainable, and the importations of foreign wools, being all invoiced at the Custom Houses, can be arrived at with certainty; together they give so close an approximation to the census returns that we may safely accept the latter as the basis of our calculations.

In the year eighteen hundred and sixty, which may be taken as about an average year, as there were then no causes at work to interfere with the regular course of manufactures, the United States worked up over eighty million pounds of wools, besides using over sixteen million pounds of cotton in fabrics designated as woollens. The total product of wool in the United States for that year was only sixty-two million pounds. Since that year, heavy tariffs have been laid on all goods of foreign manufacture imported into the United States, and increased duties have also been laid on all foreign wools, both measures calculated to benefit the wool grower of the United States, by limiting the imports both of foreign goods and of foreign wools. Yet it must be confessed that the greater part of this protection to our domestic interests is extended to the manufacturer, inasmuch as the duties on manufactured goods are largely disproportioned to the duties on the raw material, and it is to be

noted that our legislators seem always to have forgotten that American farmers, burdened with all the responsibilities of social and public duties pertaining to their position as freemen and enlightened citizens, supporting churches, Schools, and societies for mutual improvement and progress in all that goes to make the sterling, intelligent man, can no more compete with the convict shepherds of Australia, or the "Gaucheros" of Buenos Ayres, or the ignorant and ill-paid peasantry of England and Germany, than our manufacturers can compete with the pauper labor of the great manufacturing centres of England.

During the year eighteen hundred and sixty-one, the immense demand for goods suited to army purposes, and demanding immediate supplies, created an unusual call for low and medium wools, far beyond the capacity of our home production, and the crop of that year derived a material benefit from this demand and the consequent advance in prices. During the year eighteen hundred and sixty-two, prices nominally advanced still further, but when reduced to the standard of gold and silver currency were really no higher than the average for a term of five years preceding. Contrary to all expectation, the price of wool seemed to be but little, if at all, affected by the changes in currency or the almost complete withdrawal of the cotton of the South from the channels of commerce and mannacture.

The nominally high prices freely quoted in all our journals and business circulars had the effect to attract shipments on a greatly increased scale from almost every wool producing country, and the imports for eighteen hundred and sixty-two exceeded fifty-six million pounds. Despite the fluctuations of gold and the operation of the tariff, these importations continued in increased volume through the first half of the present year; the receipts of foreign wools for that period exceeding forty million pounds.

To this cause we may attribute the present condition of our markets and the general depression that seems to have overtaken them. That it will be permanent, we do not believe; that it is but a natural reaction from which we shall soon recover, seems more reasonable by far, and though wools may not again reach the nominal prices of last January and February in our Eastern markets, we expect to see them, relatively to the price of gold, even higher.

In regard to the large importations of foreign wools, it is to be remarked that the increased manufactures would naturally permit much larger importations than at any previous time, and beyond that the defection of the Southern States reduced the product of wool, directly, by the amount of nearly sixteen million pounds, and indirectly, by the amount of cotton formerly used in goods denominated woollen, fully sixteen million pounds more; so that an importation of thirty million pounds would be required to offset the deficiency of our domestic product, even allowing a large margin for the increased production of the Northern States during the past two years.

We know that the supply of goods for ordinary wear is by no means equal to the requirements of the country, and unless we are to be supplied to a much greater extent than ever before by foreign manufacturers, it is clear that wool must again be in active demand in our own markets. One fact is here worthy of mention, viz.: that our domestic growth of wool has never equalled much more than one half of the supply for our home manufactures, and the entire amount of these has scarcely equalled one fifth of our consumption of woollen goods. From all the sources of information available to us we draw the following

conclusions, to wit: That at the commencement of the present rebellion both our own and the English markets were supplied with cotton and cotton goods for fully three years in advance; hence the fact, that wool has as yet received so little enhancement from the withdrawal of the bulk of that staple. That ultimately the small accessible supplies and high prices of cotton will produce their effect on the value of wool, besides increasing its use largely and permanently.

That this result will be felt proportionably in all the wool markets of the world, and that the average prices for the next ten years at least must be highly remunerative to the grower.

That the utmost expansion that could be attained by the whole Pacific Coast would not under any circumstances make up the deficiency of our domestic growth, and even if we could attain a surplus of production over manufacture, that surplus would have abundant outlet to foreign markets.

Hence, our policy and interest is to increase the product as largely and as rapidly as possible.

The facts that sheep of all the principal breeds adapt themselves readily to all the variations of climate and range on the Pacific coast, that they are remarkably free from all diseases, that they are here possessed of unusual fecundity, and that they suffer no deterioration in weight of carcass, or in the quantity and fineness of their wool, are now beyond question and require no argument.

Heretofore it has been the universal practice to depend wholly on the natural grasses for the subsistence of the many flocks throughout the State, and but a few years ago these were everywhere abundantly sufficient to keep the sheep in thriving condition throughout the year. In the remoter localities, where there is scarcely any limit to the extent of range, this is still the case; but in localities where the land has been fully stocked with sheep and neat cattle for a term of years, and where year by year the plough has run its furrows wider and wider, gradually circumscribing the original range, it is wholly different.

The native grasses of California are, with rare exceptions, annuals, propagated each year from the seeds scattered the preceding year. Where the lands have been so persistently overstocked, the herbage has necessarily become thinner and thinner as the seeds have been gradually destroyed. This process of depasturage, though not confined to any one species of herbage, is most strikingly exhibited in the great oat ranges, where, less than ten years ago, the traveller would ride for days through wild oats tall enough to tie across his saddle, now dwindled down to a stinted growth of six or ten inches, with wide reaches of utterly barren land, marking the extinction of the native growth. The progress of this killing out of the native ranges has been very gradual, but has now reached a point when the question of "range" has become the most formidable one the sheep raiser has to encounter.

This system of stocking the grazing lands must ultimately result in their entire depasturage, and compel the sheep raisers to either a system of annual removal of their stock to the mountains for summer pasture, with provisions for fall and winter feeding on the plains, the purchase and inclosure of tracts of land of sufficient extent to permit such alternate feeding over different portions as the land could sustain without exhaustion, or the breaking up of many of the large flocks, and their distribution among the regular farmers.

It is probable that for many years to come open and unoccupied land can be found so situated that it cannot be used profitably for other agri-

cultural purposes, enough for the existing stock and a considerable increase, but year by year these opportunities will become more rare until the result indicated has been attained. Through the southern counties of this State large tracts of land can now be purchased, under Mexican titles, at nominal prices. Through the northern coast counties and on into Oregon and Washington Territory immense tracts of unoccupied Government Lands are still open to whoever chooses to occupy them; but through the central part of the State the ranges are very scarce and largely overstocked.

The great chain of mountains forming the eastern wall of the State, it is thought by many, will be found most desirable for sheepwalks; but owing to the great fall of snow to which they are subject, it is doubtful if they will answer for anything more than summer pasturage, and for this they will serve a most useful purpose.

The advantages presented to wool growers in California may be briefly summed up as follows: a mild, equable climate, eminently favorable to the growth and healthy development of sheep; cheap lands on which to make permanent settlements, or, for the present, a sufficient amount of unoccupied Public Lands, with little expense attending the keeping of the flocks.

Let us now look at the character of California wools, and the effect upon them of the existing system of herding. The classifying of wool for purposes of manufacture is based mainly on the relative coarseness or fineness of the fibre, the distinctions in this respect determining what is generally called its "quality;" but it should be understood that there are other peculiarities affecting its value even more than the relative size of its fibre; among the most important of these are length of staple, uniform strength of the fibre throughout its entire length, softness, lustre, and freedom from grease and dirt.

In all these respects, which generally determine the value of any given parcel of wool, our California product is very low in the scale, and must continue so until the whole system is greatly modified or radically changed.

The pernicious practice of fall-shearing effectually prevents the production of a staple of desirable length, and were it not for another defect, to which we shall soon allude, would be utterly objectionable.

The general character of the fall clip is bad; the wool is almost always extremely short, generally very tender, and always dry and harsh. It possesses none of the peculiar oil on which the "life" of the wool depends, and is usually so light as to blow away from before the cards, and can only be worked by mixing in small proportion with spring wool. A small proportion of the fall clip of lamb's wool is less open to objection, but even this carries a harshness of fibre that makes it quite undesirable.

Intrinsically the fall wool is worth about thirty-three per cent less than the spring clip, and beyond this it gives dealers a ground for objection against all California wool, thus indirectly prejudicing the entire product.

But even were the fleece kept entire through the year, though it might meet the requirement as to length of staple, it would generally fail in respect to strength, and measurably in respect to all other requisites. It is well known that wool is composed of the same elements that go to make up the bone, and blood, and fibre of the sheep. Hence the fact of common observation that sheep kept in good condition always give the heaviest fleeces. We quote the remarks of a writer on this subject

whose name is unknown to us, but whose views are well expressed and directly to the point we wish to develop :

"Wool, nature's provision for protecting the body of the animal in winter, makes a large draft upon the food of the sheep; and as sheep have not the skill or power to elaborate good wool from empty racks, unsuitable feed, or the east wind, the necessity of good feed, and of sufficient quantity thereof, will be readily acknowledged. In order to make healthful muscle and good wool, the constituents must be provided for the flock at all seasons of the year. The wool is supposed to contain the chief constituents of the body. It consists of phosphates, sulphates, and chlorides, salts forming the skeleton of the body, and presents, upon analysis, a great similarity to the composition of bone; it also combines a fatty matter corresponding to other animal fats, also a composition identical with flesh or muscle.

"These facts, revealed by chemistry, seem to enforce the importance of understanding the art of feeding sheep, whether wool, or mutton, or both, be the end in view, as both require the presence of the same elements in the feed. Hence, as liberal feeding promotes the growth and fattening of the body, so also it is favorable to the growth of the wool. The quality of the wool may always be taken as a sure indication of the condition of the animal producing it. Its softness indicates a thriving condition of the sheep bearing it, and to this is attributed the presence of the yolk, an oily substance having a powerful influence upon both the growth and softness of the wool. Where the yolk is deficient, wool is always more or less harsh and crisp. A deficiency of this in wool after it is grown impairs its quality, and whether attributable to inadequate feed or disease, causes the animal to lose its wool and is indubitable evidence of an ill-conditioned sheep."

It is also well known that an insufficient supply of food, by restraining the secretions, checks, or for the time suspends the growth of the fibre.

In California, where all the herbage is of annual growth, springing from the seed and passing through a rapid growth, to stand under our rainless summer skies for months a dry feed, but almost as nutritious as well-cured hay until the early winter rains wash out its nutritive elements, though sheep may live upon the native ranges throughout the year, they cannot be kept in uniform thriving condition; and whenever an extraordinary season occurs, when, either by excessive rains, or by unusual dryness, the growth of herbage is retarded, great suffering and loss are sure to follow. With the exception of a few localities where the feed is abundant at all seasons, and the sheep always in good order, we find the flocks thriving through the spring and early part of the summer, gradually falling off through the autumn months, generally very poor through the early months of winter—the very period when they most need to be kept up in condition—and after the new grasses begin to grow, gaining very rapidly again until fat. The result of these alternations is most remarkably indicated in the fibre of the wool. During the summer months, though the sheep maintain a fair degree of flesh, the dry feed and frequent short supply of water are not favorable to the growth of wool, and the fibre pushed out under these unfavorable conditions is lacking in yolk, except on the lambs, with which the supply of milk drawn from the mothers replaces to some extent the green and succulent grasses, and permits a somewhat more favorable growth. Through the fall and winter months, as the feed becomes more scanty

and of poorer quality, the wool ceases to grow, and becomes very dry, harsh, and wiry; when the improved feed begins to make its mark on the condition of the sheep, the wool starts out with great vigor and rapid growth, often presenting in the fleece a top and bottom growth of entirely different character, and always presenting a point of demarcation at which a very gentle tension will break the fibre as evenly as if divided by a pair of shears.

Many samples of wool from the lower portion of the State, and some from the coast and upper counties, last spring showed this defect in a most marked degree, and, though having a fair amount of yolk, were so tender throughout the entire length of the staple as greatly to impair their value.

From this cause it will be impossible to grow in California, under the present system, a staple that will be classed with strong wools, or to cultivate with any success those much desired and highly marketable styles called combing wools, for which the chief requisites are, sufficient length, perfect uniformity, and even strength.

In this alternation of feeding, from a good and abundant supply to a poor and scanty allowance, is also involved the production of those qualities of softness and lustre so greatly desired.

We have remarked that our climate is finely adapted to sheep, and that as a general thing they show no deterioration in size of carcass, or in weight and quality of the fleece; indeed, we have evidence in many instances of a marked increase in the size of the sheep and weight of fleece, yet there is a wide difference in the character and value of wools of equal fineness from different parts of the State, arising probably from some unexplained climatic influence, or from the character of the soil over which the sheep range. For example: the wool from the upper Sacramento valley possesses the softness and life which adapt it to purposes of manufacture in a much greater degree than that from the San Joaquin or the southern coast counties. From the latter section the wool is generally dry, brittle, harsh, and wiry. The difference may be better appreciated from the fact that parcels of wool of extra softness will work up in the factory from one to two grades above its absolute fineness, while these wiry wools commonly work as far below their grades. In the former localities the range is gravelly and free from dust, the grasses light, but sweet and highly nutritious; in the latter, the soil more or less alkaline, and the grasses coarser and rougher. Indeed, in some localities so much alkaline dust adheres to the wool that manufacturers inform us they can scour it thoroughly without the use of soda ash or soap, the wool really cleansing itself sufficiently.

In the preparation of wool for market, our wool growers have made great improvement within the past few years, yet there are, annually, many and well founded complaints on this ground. Care in the processes of shearing, tying, and sacking, is all that is required to present wools favorably, and policy, as well as common honesty, requires the removal of all foreign matter, such as tag-locks, corral dirt, sticks, sand, and stones.

The grease or natural oil of the wool cannot so well be avoided, because there are few places where the sheep could be properly washed before shearing; but it is here worthy of note that the tendency of our wools is to dryness and light supply of oil, so that, with the exception of the high-bred merinos and merino crosses, the average shrinkage of California unwashed wool, in the process of scouring for the factory, is from five to ten per cent less than the shrinkage of eastern washed

wools. In our high-bred merino flocks this shrinkage runs very high, from fifty to seventy-five per cent, and reduces their comparative value very materially.

Upon the views here expressed arises the question, can these disadvantages be so overcome as to enable California wools to compete with those of the Western States—Michigan and Ohio, for example? We rely with confidence that they can just so soon as our flock masters come to exercise the same discrimination in the choice of rams, the same careful attention to their business, the same abundant provision of food for their flocks, and bring themselves to a complete discontinuance of the practice of fall shearing. This course will give to their wools all those desirable characteristics in which they are now deficient, and with proper care in putting up the fleeces, they will show to almost as good advantage as the wools from the States mentioned, with which they cannot now be compared at all.

Where the native grasses are now the entire dependence, some further provision should be made for the fall months, and especially for the period intervening between the killing out of the old grass and the springing up of the new. This provision will vary with the character of the range, but should be sufficient to keep the flock in fair condition and in good strength throughout the year. In our own experience, an expenditure of about twenty-five cents per head carried our own flock safely through the severe winter of eighteen hundred and sixty-one and eighteen hundred and sixty-two, on an extremely light range, and with very little shelter from the storms.

Where the ranges are thinned out by overstocking, and the grasses—as in many localities is now the case—are supplanted with weeds, the stock should be removed to more remote localities, and in doing this but little objection should be made to the increased cost of getting the wool to market, as any such increased expense would prove to be but an insignificant item, and it should be borne in mind that relatively to its value there is no article of produce so cheaply transported as wool.

This course of alternate feeding out the range and removal to new pasture will answer partially for years to come; but, as before remarked, the owners of large tracts of land and the regular farmers must ultimately control the wool product of this coast. To the latter the possession of such numbers of sheep as can be kept well on the refuse of these farms will prove an immense advantage, directly by the yearly return of wool, and by the cheap and convenient supply for the table, and indirectly by the benefit to the soil.

A fine illustration of this indirect benefit has recently occurred to our notice on the farm belonging to Mr. Robert Blacow, in Alameda County. On this farm a lot that had been used for a year as a pasture for about sixty head of sheep, was this year put into grain, the yield was a hundred per cent greater than from other portions of his farm, or than that from any of the farms adjacent; this increase could only be attributed to the sheep, and alone paid much more than the cost of their keeping.

As to the most profitable breeds of sheep, we can present but a few casual remarks. Of the distinctively wool producing breeds, the French and Spanish or Vermont merinos are unquestionably the only profitable ones; both have their earnest advocates, but between the best selections of the two breeds there appears to be but little difference. Both thrive well, are equally healthy, and produce fleeces of nearly equal market value. The French merinos are larger boned, heavier carcass, and heavier fleece than the Spanish; the latter have a more uniform and somewhat

finer fleece. Our opinion is, that a judicious interbreeding of these varieties will produce the best and most profitable sheep for our California wool growers.

Of the mutton producing varieties, the Southdowns, Leicesters, and Cotswolds, stand at the head of the list. The first of these produces a medium wool quite marketable, but generally light and dry; it is an easy keeper, maintaining its condition on very light range, and certainly affords a very fine supply for the table. The others are larger and heavier sheep, and under favorable circumstances produce the valuable combing wools, but to do so require a larger supply of green, succulent food, and a pasture entirely free from burrs or seeds, either of which destroy its special value.

Parties owning land adjacent to the reclaimed tules, and convenient to market, could use these varieties with great profit, as the fleece would attain in such localities a favorable growth, and the portion of the flock designed for the butcher would always keep in good order and command high prices. Apart from the few so situated as to derive a profit from these classes of sheep, the merinos of the class named above must become the prevailing style; and wool of the grade of half or three quarter blood —if the original stock is even passably good—will be found the most profitable to raise, as it is sufficiently fine for the ordinary market, and while carrying oil enough to give it desirable working qualities, is not subject to so great waste as the higher grades.

Of the localities best adapted to the growth of wools, we note a gradual improvement as you go northward. For example: the wools from the lower counties in this State, apart from the almost universal presence of burrs, are greatly deficient in strength, pliability, and softness.

From a careful observation of the product of the State, under very favorable conditions for attaining correct estimates, we should place the wool from various counties in the following order, going from the lower to the higher:

San Diego, Los Angeles, Santa Barbara—wools almost all dry and tender, and always burry. San Bernardino, Tulare, Fresno, Monterey, and San Luis Obispo—wools generally in better condition, but still harsh and often tender, a large part burry; a great deal of finely improved stock in the last two counties, and much of the wool is of fine quality. Merced, Stanislaus, San Joaquin, Santa Clara, Alameda, and Contra Costa Counties, show a regular though gradual improvement. Mariposa, Tuolumne, and Calaveras, generally produce very pretty and clean wools. Solano, Yolo, Colusa, Sacramento, Amador, El Dorado, Placer, Sutter, Yuba, Butte, Mendocino, Lake, Sonoma, and Tehama rank in about the order stated, the wool from some of them being only second to that from Oregon and Washington Territory. Marin and Napa Counties also produce quite good wools, but have some clover burr, which injures their sale materially. Of all the wools grown on the Pacific coast, those from Oregon and Washington Territory are by far the best; they are always of good length, very strong, bright, soft, and entirely free from dust or burrs. These facts indicate that the northern portion of our coast is best adapted to wool growing; their climate is somewhat cooler, the lands are well watered, the grasses are green and growing through the greater portion of the year, and they are not so fully stocked nor so liable to periodical failures of feed as the southern portions of this State.

We have indicated what, in our opinion, will be found the most profitable style of sheep to raise for a term of years, viz: those yielding a large fleece of medium and fine medium wool; but in closing this paper

we desire to refer briefly to the subject of fine wools. Our attention is more strongly called to this subject by noticing in our English wool circulars repeated remarks on the falling off in the character of Australian wools.

For many years the German flock masters almost monopolized the production of the finest wools. The greatest care was given to their flocks—breeding, feeding, and rearing them with but the one object, every other point was made secondary to the fineness of the fleece. This course pursued steadily through generations gave at length the perfect Saxon and Silesian Merino. Originally springing from the hardy Spanish Merino, the same parent stock from which has sprung the well developed, heavy fleeced, and hardy French and Vermont Merinos, it was bred down to a weak, bad formed, and light fleeced animal, but the point in view was attained, namely: a wool of almost gossamer fineness. After all the care and labor attending the rearing of these flocks, the twelve to twenty ounces of wool they gave could not be raised with profit except it could find a market willing to pay a price corresponding to the cost of production. These sheep were introduced into Australia, where, with a mild climate, immense ranges, and convict labor, they soon began to supply the markets with wool almost equalling the German in fineness, and at greatly reduced prices—in fact, bringing them within a few cents per pound of the medium wools.

This condition of things compelled the German farmers to change their system, and breed for heavier fleeces, a process that has been going on for years. Australia has continued to import from these flocks until the effect begins to be made apparent in the diminished supply of these extremely fine wools, and it is not improbable that within ten years fine wools may again command such extreme prices as would justify our wool growers in making material changes, for which the style of sheep we have recommended will prove an admirable basis.

San Francisco, September 26th, 1863.

THE FENCE QUESTION.

BY WILSON FLINT.

STOCK GROWING AND PRODUCE FARMING.

Deeming it to be the duty of the State Agricultural Society to put on record whatever may come before it concerning the condition and wants, the progress or decline of the great producing interests of the State, the person to whom has been assigned the labor of writing out the history of this year's exhibit of stock finds himself compelled to go somewhat at length into a discussion of the collateral questions which have had a remote or direct bearing in depressing this interest; and while it is a pleasure to transcribe for publication whatever is worthy of commendation betokening improvement, it still is no less a requirement that there shall be plainly stated the causes for any falling off or deterioration discovered in any branch of the industries. Neither can the writer expect, in the brief limits to which this paper must be confined, to give a detailed statement of the causes which have made stock growing in California a precarious and unsatisfactory business.

When the gold discovery was made there were great herds of cattle, horses, and sheep congregated in vast bands at a comparatively few points, remote from each other, and scattered along the sea coast valleys. The number of stock, however, was insignificant, compared to what it is at this date; but throughout the middle districts it has ceased, in a great measure, to be grazed in large bands, it being now scattered over the entire country under a numerous proprietorship. This, while it has had the effect of introducing improved breeds to a gratifying extent, has at the same time made stock raising in the designated localities a more difficult and expensive business. The chief reason of this is that, under the multiplicity of ownership of stock, there necessarily has taken place a greater subdivision of land, so that when set off into small parcels no one proprietor had sufficient to make stock raising an entire occupation; hence, he is forced to take such portions of his small tract as would grow the cereals for the plough, so that his animals would be turned out upon the hills and less fertile plains to pick up their forage as best they might.

The practice of the old Californians had been to graze their herds in the valleys during one season, and then drive them to the reserved pasturage of the hills when the supply in the valleys gave out, thus always, excepting in seasons of unusual drought, having for their stock an abundance of food. In this manner they were enabled to keep their herds in fair condition through the inclement season of winter, and avoid any considerable loss by sheer starvation. It was supposed that on the advent of the American farmer that he would introduce improved measures in stock growing, as well as in cereal agriculture. The American method, however, of fencing land, and using the best for grain, has entirely done away with the custom of reserved ranges as considered imperative by the old Californians, and the result is that nearly all of the stock throughout the middle and northern parts of the State which is not fed with hay or straw, stored for the purpose, suffers a very severe shrinkage in weight during the winter months, as the pastures having been fed down close in the summer, there is little left on them to subsist animal life during the winter.

The grasses left standing in the field after ripening retain all of their nourishing properties so long as the weather remains dry; but the first rain dissolves the secretions of gluten, of which they become largely composed—maturing as they do in a season which is rainless, but subject to nights which deposit what are termed honey dews. The first rain dissolves this honey dew gluten, and a rapid fermentation and decomposition of the forage standing in the field is the result. Where there is an abundance of this grass, however, it becomes a protection to the young blades which immediately spring up underneath, and the stock, by mixing these two kinds of food, will get on tolerably well; but where forced to subsist mainly on the young, unnutritious grasses, they are affected with the scours, and become weak, and in poor condition to meet the storms of rain and cold winds which find them shelterless in California, except in some friendly gulch in the hills or ravines of the plains.

It seems strange that so many stock growers will still persist in forcing their herds to pick up a precarious subsistence and encounter the chilling, cold rain storms, when a small outlay would provide shelter, and the mowing of a few tons of hay would carry them through the only season in which they suffer by reason of exposure to the elements without a supply of nutritious food. What a sad commentary on the spirit of American progression and innovation, for stock raisers to say that they are not disposed to store forage to feed their stock in the winter, simply because the old Californians did not do it. In everything else in California the Anglo-American is swift with innovation, and even in the matter of stock grazing we find him innovating so far upon the ancient custom as to rob the herds of the richest grazing districts by plowing them up for grain fields. Probably the close-fisted modern herdsman calculates that he is much smarter than those he has supplanted, because he can produce grain in addition to an equal number of animals on the same area of land. Glancing at the peculiarities of climate, it is seen that our grasses, by necessity, are only annuals, as the dry season is so long that vegetable life is extinguished even in the roots of the grasses. Hence it follows that our pastures must have an annual re-seeding. Whence shall be supplied this seed? It has been shown that the modern system of close feeding uses up the grass before it can have ripened and resown the pasture. Among natural as well as cultivated grasses there will be mingled more or less of noxious weeds which are rejected by the stock as long as a spear of palatable grass can be found. Now, the valuable

grasses being consumed before the seed ripens, it follows that the next year's growth of grass is less in quantity, while the crop of weeds would be greater in proportionate ratio as it obtained the mastery of the field. There are large districts once covered with a heavy growth of nutritious grasses now entirely the receptacle of repulsive and useless weeds, owing entirely to this destructive system of grazing.

It is time that our farmers should turn their attention more largely to the growing of grasses or grains for hay. Indeed, these hideous wastes of noxious weeds should be plowed under to rot in the summer fallow, and early in the fall the wild oat should be thickly seeded and harrowed upon their decaying, fertilizing debris. One crop of this kind will redeem the foulest piece of land so that it will continue to be a valuable pasture for years afterwards. This, indeed, is what must be done if our grain farmers desire also to continue stock raising as a part of their business. In order to raise stock with profit or satisfaction under the changing condition of land proprietorship in this State, it becomes necessary to cultivate hay crops and store for winter use.

It is no unusual thing to witness, in many districts of the State where stock and grain growing are both conducted, farmers burning up huge piles of straw in the fields where the thresher left it, seemingly in great haste lest the long-deferred rains should overtake them before the lurid flames should have lapped it up in the very sight of lowing herds which instinctively snuff gaunt famine in the rising storm. Later in the season the barren pastures on such a straw-burner's domain will be sprinkled with the carcasses of his herds, while his corral fences will be covered with hides as evidences of thoughtless, wanton, shiftless waste. Such a farmer will complain that the season has been hard on stock, and grumbingly pocket a meagre dividend obtained from the sale of hides, minus the accompaniment of tallow. It is the constant boast of our Anglo-American population that they are far in advance of the native Californians in every branch of industry. So far as this applies to the subsistence of stock, this boast is not borne out by facts. The Californian, if he did not cut and store hay for winter use, at all events reserved a portion of his pastures for winter grazing, while the improvident American, with rare exceptions, does neither. It is no extravagant assertion to state that the stock throughout the State which is left to obtain its subsistence from the range alone during the winter suffers a loss of not less than one third of its aggregate weight by shrinkage alone, to say nothing of the vast numbers which perish from exposure and starvation. The adage of "a feast or a famine" applies with significant force to stock growing as at present generally conducted in California. A few years since the desire to own land and raise stock very nearly became a mania with all classes of our people. Indeed, the capitalist, professional man, and laborer with small means, were nearly as much beside themselves in their desire to own lands and herds as they are now to enumerate their figure columns of "feet."

Probably no one great interest in the State kept up so long to so highly a remunerating basis as stock raising. This was owing to the reason that the great bands of Spanish cattle were driven to remote and inaccessible places by the rapid substitution of grain farming in the middle districts, which thus usurped the choicest ranges nearest to the centres of population. Stock growing, however, did not cease in these districts—it was only changed by the substitution of improved breeds in small but numerous herds. The increase of these choice breeds were withheld for years from sale to the butcher, as they were most valuable

for breeding purposes. Thus, while the Spanish herds were driven further off, those near market were nominally withdrawn. This accounts for the long time at which beef cattle remained at a high price. It was some years before American beef cattle could be had at any price, and the effect was their rapid multiplication, with constantly diminishing ranges. Two causes at length operated to bring American beef cattle into the market in great abundance. These were a desire to realize after a long period of investment in multiplication, and the increasing difficulty of procuring pasturage. Although long deferred, the eventual decline in stock was as sudden as it was extraordinary. This unexpected prostration of an interest in which large communities had invested their means for years, with the expectation of acquiring a competence from the enterprise, has had the effect of producing a widespread discouragement and an abandonment of the business, attended with ruinous losses by a great many persons. While sanguine of a favorable result from their investments in stock growing, greater attention was being paid to the improvement of breeds, and it should be a source of pride to our farmers to reflect that they have been enabled in so short a time to expel from the ranges the nondescript Spanish breeds, and substitute in their places the majestic Durham and kindred blood. Having attained this, which is but the first step toward final success, it becomes a matter of the greatest importance for the herdsman to provide such subsistence as shall not only keep his improved breeds of cattle from deterioration, but render the business of pecuniary profit. This certainly cannot be expected under the "feast and famine" process. The only available means to render stock raising certain and profitable is to cultivate and store forage crops, to be fed out in the famine season. This recourse involves the consideration of one of the gravest questions affecting the relations of landed rights. It is the question of fences. This question may be examined in two aspects:

First—As to which is the best policy, as a mere matter of economy, either to fence stock or grain.

Second—What are the equities and natural rights existing in the case.

In the first proposition, it will be necessary to illustrate the subject by a comparison of the economies and profits of stock farming as compared with produce farming. In the second proposition, it will be desirable that an analogy be drawn, so as to show that human society may have acted inconsistently when it established rules of restraint which should operate to protect persons from aggression, but were subject to reversal when applied to outrages committed on property.

COST OF FENCING GRAIN AGAINST STOCK.

Statistics showing the cost of fences in any country, when arrayed in columns, will appear of startling dimensions, and in none more so than in California. In the first place, our fencing material has to be brought from a long distance, incurring heavy charges for both water and land carriage. Then, again, where it is other than of redwood, it soon decays, and must be renewed after a few years of exposure to our dry and wet seasons, which operate to produce rapid decomposition. It is intended in this article to lay before the public a few facts gathered from reliable sources in illustration of the comparative relations existing between stock growing and produce farming in thirteen counties of the State, where the area of land is occupied in nearly equal proportions by each interest. The counties taken for purposes of illustration are Alameda,

Colusa, Contra Costa, Napa, Sacramento, San Joaquin, San Mateo, Santa Clara, Santa Cruz, Solano, Sonoma, Sutter, and Yolo. If two adjoining tracts of land, one occupied for stock growing and the other for grain farming, are considered, it will be seen that either one or the other must be fenced, or the grain field will be encroached upon and destroyed by the stock. It is needless, at this point of the illustration, to state that the grain field is incapable of going over upon the stock range and committing depredations. Its reasonable request is simply "to be let alone." Hence the stock range finds no necessity for the erection of barriers against the encroachments of its neighbors. The greatest obstacle to profitable farming in this State has been the costliness of fences, not only at the outset, but for constant repairs. The enormous outlay for fences in our great produce counties would hardly be credited upon any statement short of the actual figures. These figures it is proposed to give, as taken from the returns of the County Assessors to the Surveyor-General of the State, from the thirteen counties named.

There are in these thirteen counties, as by the returns of the Assessors, one million nine hundred and fifty-nine thousand four hundred and ninety acres of land under fence, which may be estimated to have cost ten dollars per acre, or an aggregate of nineteen million five hundred and ninety-four thousand nine hundred dollars. Taking the number of stock as given in the Assessors' returns and estimating its value at market rates, the worth of all the horses, mules, cattle, sheep, and hogs in these thirteen counties will sum up eight million eight hundred and four thousand seven hundred and seventy-four dollars. Thus showing that the fences have cost ten million seven hundred and ninety thousand one hundred and twenty-six dollars more than the total value of all of the stock in the district. By this it appears that grain growers could well have afforded to have bought this stock and given it away for exile, and thereby saved ten million seven hundred and ninety thousand one hundred and twenty-six dollars, if they could by so doing have escaped the necessity of erecting fences to protect their grain fields. A comparison of the annual value of the farm produce raised in these districts with the annual value of the increase of stock, will afford instructive material for the economist. The value of the wheat, barley, oats, corn, rye, buckwheat, peas, potatoes, hay, fruit, wine, and garden produce grown annually in the thirteen counties indicated will aggregate to the sum of twenty million sixty thousand eight hundred and twenty-four dollars. Estimating the increase in the value of the stock in the same counties thirty-three and one third per cent on the gross stock valuation, and its yearly earnings are two million nine hundred and thirty-four thousand nine hundred and twenty-four dollars, being seventeen million one hundred and twenty-five thousand nine hundred dollars less than the earnings of produce farming during the same period. The fences having cost nineteen million five hundred and ninety-four thousand nine hundred dollars, interest at the rate of one and one half per cent per month on this amount is three million five hundred and sixty-seven thousand five hundred and ninety-two dollars, which should be charged to the debit of the stock. Add to this, eight per cent on the cost of the fences, one million five hundred and sixty-seven thousand five hundred and ninety-two dollars, for depreciation, decay, and repairs, and there is a total annual tax on produce farming of five million ninety-four thousand six hundred and seventy-four dollars as a subsidy to aid stock growing. The total annual earnings of stock growing being only two million nine hundred and thirty-four thousand nine hundred and twenty-four dollars, and the interest on

the cost of fences, with the yearly depreciation added, footing up, as it does, five million ninety-four thousand six hundred and seventy-four dollars, shows clearly that stock growing is chargeable with a loss above its earnings of two million one hundred and fifty-nine thousand seven hundred and fifty-four dollars, which has to be contributed by the produce farmer. Is such an unnatural condition of things consistent with the economies of the great agricultural industries? Sooner or later its palpable errors will be discovered in the prostration of great interests under the natural law of adjustment and compensation. The figures, as above given, are not set down as definite—they are, however, approximate, and not far out of the way, and sufficiently reliable to be taken as a basis of facts of a startling character.

THE EQUITIES OF FENCE CUSTOMS.

It is related that a person in London had trained a raven to watch at the open windows of the dwellings of opulent persons, and when it discovered pieces of coin or articles of jewelry, to fly in, seize them, and straightway carry its rich prizes to the domicil of its master. Will it be pretended that it should be obligatory on the owners of these valuables to erect such barriers as would prevent the thieving raven from obtaining access to the coveted articles, and that it would be no felony for the party employing the raven to do his nefarious bidding to receive the fruits of these robberies and convert to his own use the proceeds of such burglarious enterprises? Or, to make a closer application of the principle, has the law given evilly disposed persons license to enter upon the lands or into the houses of whom they may, and take and carry away whatever they choose, simply because the party trespassed upon has not guarded his property with such barricades as would render the trespass a matter of physical impossibility? The customs of society are quite to the contrary. It is a legal maxim—venerable both because of its age and equity—that it is a felony for one individual to go upon the premises of another individual and seize and carry off his effects without leave or license. Why, then, is it that, when the statute prescribes pains and penalties against the aggressions of persons upon the property of others, it should reverse its theory and apply a different rule when it is a case of the aggression of property on property? It has been shown that in the case of the pilfering raven its owner and human confederate became amenable to criminal prosecution for the joint offence. Is there any cogent reason why this rule of equity should not be applied to the offending owners of all other kinds of bipeds or animals which may have been pilfering upon the premises of others? It certainly should be the right of an individual who is in tenancy of a piece of land to enjoy its undisturbed use, particularly when, as an evidence of his good faith and honest intentions toward his neighbors, he should give them notice that they need apprehend no encroachment on their domain from himself or anything under his control, and with which assurance his neighbor is relieved of the necessity of erecting barricades. Ought not the statute to provide for a mutual pledge between the parties that neither should encroach on the other? Not so is its practice. It compels the party who voluntarily takes a position whereby he can do no wrong to others to erect costly barricades to protect his own industry, on his own premises, from the wanton aggressions of his neighbors. Where is the moral difference between the acts of the owner of the raven and the owner of stock, which, by his act of subjecting it to starvation on his own ranges, stimulates the animal instinct to

seek food on the rich herbage of his neighbors' grain fields? The error of the statute consists in the fact that it does not place the matter of boundary rights between landed proprietors on the same footing that it does the community in its police regulations. Suppose, for illustration, that an individual denying the rights of another should make it dangerous for the latter for him to reside in his place of domicil; would it be according to the theory of justice that he, a peaceful citizen, living in the retiracy of his own premises, should be obliged to inclose himself within impassable walls to obtain security against the aggressions and trespasses of every intruder? Is it not rather the legal intention that prison walls should be built for the reception of involuntary rather than voluntary inmates? It certainly would be a new rendering of justice to compel the inoffensive to seek for safety under lock and key, and grant license to the desperado to commit outrage upon him with impunity whenever he was unfortunate enough to be met outside of his barricades. Yet this theory is precisely what is practiced and applied to the relations between landed proprietors. That there is any equity or justice in this absurd custom, no person has ever yet attempted to affirm. True, the custom is as old as written law, and this is the chief obstacle to its overthrow. Tenaciously, however, as it has been adhered to, it is giving way before a more enlightened and thinking agriculture. Indeed, the march of progress inaugurated in the agricultural industries by the substitution of machinery for manual labor, has so cheapened farming, by increasing the production of articles of first necessity, that old communities have been forced to modulate their customs and usages, to conform to the changes which have been brought about by the settlement of new districts, where new ideas are of more ready inception; hence, old communities are no longer able to avert a discussion of the fence question. On the earnest and persistent importunity of cattle and horse growers, the Legislature, during the session of eighteen hundred and fifty-seven, were induced to pass an Act which forbade sheep from being herded or grazed on the lands or possessory claims of others than the owners of said sheep. This only applied to the Counties of Marin and Sonoma. In the next session the law was made to extend to several other counties, and in eighteen hundred and fifty-nine it was made operative in still more counties also. An infringement of the Act subjected parties to severe penalties in the way of fines. Ineffectual efforts were made by wool growers from time to time to get this Act repealed, but the Legislature wisely determined to not interfere with a law which simply protected the owner in the undisturbed use of his own land. If it is right to prohibit sheep from trespassing on the land of other persons than that of the owners of said sheep, why should it not be equally just that cattle, horses, mules, and hogs, should not also be prohibited from herding on the land or possessory claims of others than the owners of said cattle, horses, mules, and hogs? The Legislature, in enacting what is called the Sheep Law, took the first practical step toward the repeal of all fence laws, as this Act has the effect of repealing all fence laws so far as sheep are concerned. Most people will affect to believe that the subject of abolishing the fence laws is surrounded with intricate difficulties and insurmountable obstacles. This is a grave and inexcusable error. All that is required to overthrow the fence statute is simply to amend the Sheep Law so that it shall apply as well to all other kinds of farm stock. Notwithstanding that stock growers, with the exception of those subject to the penalties of the Sheep Law, have enjoyed a sort of freebooters' privilege

to forage on other persons' lands where there were no "lawful fences" to prevent, still, with all this favoritism, stock breeding has been shown to be a branch of agriculture of inferior magnitude to that of produce farming, and although the recipient of the indirect benefits of an enormous tax on the latter interest, it is in an unpromising condition except where it has been put under the restraints of fences.

Gratifying as are the reports from many of the farming districts of the State, the fact cannot be concealed that in other and large sections there is a decay and falling off in the general thrift and prosperity of those engaged in produce farming; nor is this compensated by an increase of stock grazing in those localities. Somewhat of this dilapidation may be attributed to the growing scarcity of labor in consequence of the sudden withdrawal of large numbers from agricultural to mining pursuits within the past three years; but more must be charged to the great cost of establishing and maintaining "lawful fences." That something must be done to rescue our great plains from total abandonment by the plough is becoming more and more apparent. Two remedies are within reach: abolish all fence laws, thereby rendering produce farming less costly; and establish quick and cheap transportation to market.

RAILROADS AS A REMEDY.

But, says a man who owns teams which are engaged in hauling freight across the mountains, if there was a railway from the navigable waters of California to Nevada Territory, teaming, which has grown into an enormous business, would be ruined. Admit that such a result would follow—and this is a proposition not tenable, as will be shown a little further on—and what is the position as regards the general public economy? It would seem that a system of transportation must be adhered to which is not profitable to those conducting it, and is positively ruinous to the great public interests, simply because of an aversion to change. That a railroad from Sacramento to the great central basin would entirely drive off of the wagon roads the present continuous caravan of teams cannot be doubted, and this is the stongest argument which can be raised in favor of its immediate substitution. Cheap and rapid transportation has become the necessity of every great community which strives to maintain its industrial relations in a flourishing condition with competing nations. Look where one may among civilized or barbarous nations, and it is seen that wherever there is any considerable traffic carried on between different localities, the old mode of packing or transportation by animal power for the propulsion of vehicles is rapidly giving way to steam on the railway. Indeed, this is as much of a necessity to the general economy of society, as it is required to enable communities to maintain themselves in the swift march of modern improvement. The reduction of freights between Sacramento and the great basin east of the Sierra Nevada Mountains, from the present price, which averages about one hundred dollars per ton by teams, to ten dollars, which it can be done for by railroad, would save ninety dollars on every ton, to be invested in developing the mines. It being estimated that the transportion on the Sacramento route will cost nine millions of dollars this season, it will be seen that railroad transportion would effect a saving of over eight millions of dollars, which, if added to the capital used in productive industry, instead of being wasted needlessly in transportation, would create new

and large mediums of employment for the teams now employed on the route across the mountains. But this is the smallest of the considerations. If freight from the Sacramento River could be delivered in the basin at ten dollars per ton, the imagination would become bewildered in a contemplation of the enormous wealth which would spring out of the earth in Nevada—that exhaustless storehouse of the precious metals. Even at the present enormous cost of transporting machinery and supplies to Nevada Territory, these new mining districts have become of such importance as to involve in their development the brain, and muscle, and material means of a vast number of the people of California, and the spectacle is presented of the enterprise of the Golden State being turned inland upon the continent, instead of looking outward for the wealth of the Indies. With this new and sudden change of population follows as rapid and extraordinary changes in the business relations of society. Some of these changes are already of a marked character, and so directly connected with the farming interest as to require being stated.

There are not less than four thousand teams, which will average six animals each, employed in freighting between California and Nevada Territory on the direct routes from the port of San Francisco. A large number of these work animals have been suddenly withdrawn from agricultural labors, which has caused an abandonment of great numbers of farms in many sections of the State. Estimating the value of a six-mule team, including wagon and gearing, at one thousand five hundred dollars, it is seen that there has been invested in this mode of transportation not less than six millions of dollars. The freight carried by these four thousand teams, being estimated at nine millions of dollars, will, when divided, give two thousand two hundred and fifty dollars to each team, which certainly does not show a very high average of earnings on the capital and labor invested. Indeed, it affords evidence that while this kind of transportation is a severe tariff on the industry of Nevada Territory, it offers little encouragement to those engaged in conducting it, while, when viewed in its bearings upon the public economy, it is accompanied with great waste, nearly approaching to disaster. Few teams procure return freights, hence most of them are subject to loss of time and expense, which adds materially to the bad economy of this mode of transportation. Freights are so irregular, and so long subject to entire suspension during the winter months, that there occur frequent interruptions in the business in the favorable season, while there is no possibility of employment on the route during the inclement part of the year. Thus, there occur long periods of idleness both for men and animals, all chargeable to the debit of a wasteful system of transportation.

The paramount occupation on the Pacific slope has, since the gold discovery, been mining; and this interest will claim precedence in the future for generations. The next in importance will be agriculture, and each of these pursuits must depend upon the other for its permanent prosperity. A proper adjustment of labor and capital between these two great industries should be the study of all. When so great a preponderance of our population is engaged in mining, it is reasonable to expect that the cost of mining will be increased from the neglect of agriculture by a scarcity, and consequent enhanced cost of living. This illustrates all of the other relations of industrial life.

That a railway is a necessity to the future successful working of many of the mines already now opened in Nevada, is as certain as it is that thousands of the very rich claims there can never be made to pay until cheaper transportation is an accomplished fact. With the present expen-

sive mode of transportation, there is afforded to the agriculturists of Nevada Territory a protection which is resulting in developing that interest at such a rapid pace that in a few years the great inland basin will be self-supporting, so far as regards all of the great staple articles of agriculture. This, at a superficial view, might be regarded by the people in Nevada as a reason why they need feel no haste about procuring railroad transportation. Let the people of Nevada, however, consider that their great and almost only source of wealth consists in their minerals, and whatever facilitates the process of extracting these from the earth in the most speedy and economical manner should be paramount in their thoughts. With a railroad transportation, California can feed the miners of Nevada Territory at a far less cost than this food can be raised in her unfavorable soil and climate.

ESSAY ON THE CULTURE OF THE VINE.

BY WILLIAM DANIELS.

FOR WHICH WAS AWARDED THE FIRST PREMIUM.

THE CULTIVATION OF THE GRAPE VINE IN CALIFORNIA.

I had rather cultivate a vineyard than write an essay, but at the solicitation of my friends, some of whom are largely engaged in the business, I will (as far as a moderate sized essay will admit) state the results of my fifteen years practical experience and actual observation in California.

The first point of consequence is choosing a suitable site for the vineyard. The aspect should be southwest; that is, the ground should slope in that direction; but any slope, either southwest, west, or northwest, is better than a slope in the opposite direction. Never choose an eastern aspect if you can possibly avoid it. A great portion of California is subject to late spring frosts, long after the vine has put forth its young tender shoots. The coldest part of the night is just before sunrise, and the frosts in California will, on an average, be twice as severe on an eastern slope as they are on a western. The western slope will receive the warm sunshine all the after part of the day, and long before it receives the last parting rays of the setting sun, the eastern slope will be left in the shade; and if the ground is well cultivated it will imbibe warmth from the sun as long as it shines. This will often preserve it from frost, when the eastern slope is quite white. The first bright rays of the morning sun, striking the tender frosted foliage on the eastern slope, will scorch it like an oven; whereas, on the western slope, suppose a light frost has dropped down, the atmosphere above the vines will become warm before the sun strikes the foliage, creating a warm, incipient fog, often sufficient to draw out a light frost before the bright rays of the sun strikes directly on the foliage, so that the frost has left no sign. Many a florist has taken his tender, frosted, pet plant and hurried it away to some dark, shaded place before the morning sun strikes it, giving it a shower bath of *cold* water, and kept it there till the frost was all drawn out, and thereby saved his plant.

The soil most suitable for the grape vine is a rich, free, gravelly loam. It should be well broken up, to the depth of at least eighteen inches, and if a stiff, cold hardpan underlies it, it should be thoroughly underdrained before setting out the vineyard—the after cultivation will then be easy. Stagnant water around the roots is poison to the grape vine, as well as to almost all other fruit bearing trees or vines. No deep ploughing should be allowed after the vineyard is planted, except one or two furrows along the middle between the rows, for the first two years. A light cultivator and a hoe will be the best implements to keep the ground clean and mellow on the surface. A top dressing of well decomposed manure, once in two or three years, will be an advantage. It should be applied just after the fall pruning, so that the winter rains will take its chemical properties down to where the spreading roots of the vine will find it. The whole may be worked in with the cultivator in the spring, and no cultivation should be allowed when it rains, or when the ground is wet enough to pack.

The next point to be considered, is planting the vineyard. The rows should be laid off four feet apart, and the vines six feet apart in the rows, and the rows should run north and south as near as may be. I prefer cuttings to rooted vines, and plant two in a place, for the reasons—

First—They can be got for less than one fourth the cost.

Second—If the ground is well prepared they can be set out with less than one fourth the labor.

Third—By setting two cuttings in a place you can almost insure an even plant over the vineyard, which is a great desideratum, and the cost of the extra cuttings is trifling in comparison with a lot of unprofitable and unsightly gaps in the rows.

Fourth—A cutting will make a better vine, all else being equal, when left where it is set, than when removed. The roots of a grape vine should never be disturbed if it can be avoided, and it is almost impossible to remove a vine without injuring to a certain extent almost all its roots; and in three years from the time of setting out, the vineyard set with cuttings will be fully equal to the one set with rooted vines.

The cuttings should be made in the fall, at the time of the fall pruning, from well matured wood of the current year's growth. Each cutting should have three well matured buds, or joints, cut square off just below the lower joint, and leaving an inch of blank wood above the uppermost one. As soon as made they should be tied up loosely in small bundles, with the lower ends all one way, and placed about two thirds their length, lower ends downward, in very wet sand or water—a deep muddy puddle is the best. They will imbibe twice their weight of water, which will help to sustain them in the spring until the roots begin to start. They should be set out in January, or as soon as the ground is in good condition. In setting the cuttings place the lower ends of the two cuttings near together, and let the upper ends slope away from each other sixty degrees, lengthways with the rows. Press the earth firmly around the lower ends, and set them at a depth so that the uppermost bud will remain just at the edge of the ground.

All the attention they will need the first year will be to keep the ground clean and mellow on the surface, except it is a very dry spring, in which case a little of the earth should be drawn away from around the cuttings, forming a small dish, and give them a good watering in the evening. The next day draw the earth back again, leaving it perfectly smooth, and do not wait till the cuttings are entirely dried up before

you do it. It may be necessary to do this twice during the early part of the first summer. After this no irrigation should be allowed.

The next point to be considered is pruning and training; and here I should feel great diffidence were I not sure that the plan I shall here recommend, though differing from many others, is the best that can be pursued in order to produce the largest and richest crops of grapes, and at the same time maintain the vine in a healthy condition; and I speak from fifteen years practical experience and actual observation in California.

During the first summer no pruning will be necessary. At the fall pruning in October, the shoots that have formed during the summer should be cut back to two or three buds each. Be careful to leave the most prominent and well matured buds, in order to insure a good supply of leaves next year, as on that will greatly depend the growth of the roots and vigor of the vine. This will do for the first year, and during the second summer the same course should be followed, allowing every bud and leaf to expand to its utmost, and take nothing away until the fall pruning in October, at which time the vines, if they have done well, will measure from three to four inches round the stem near the ground. It is now time to prepare the vine to produce fruit-bearing wood, so as eventually to bring it into a bearing condition. The vines should now be cut back to within two or three buds of the stem, and the next spring allow all the buds to grow till some of them are from four to six inches long, then select the two strongest on opposite sides of the stem, if you can, and lengthwise with the rows. Take all the others clean away, and let none others grow through the summer but the two main shoots mentioned above.

These two shoots should be trained each way, lengthwise with the rows, and any lateral shoots starting out from the joints should be allowed to make one joint, and then pinched off just beyond the first leaf, taking care never to remove or injure a full grown leaf. These main shoots should be so trained as to get as much light and sunshine as possible, in order to mature the wood and fruit bearing buds for next year's crop, and stopped about the tenth of September, so that the first fall frosts may not injure the vine, by freezing the young green wood.

I suppose scarcely any one will read this essay who is not aware that grapes grow only on the wood grown the previous year; care should therefore be taken that enough of this wood is produced, well matured, stout, and strong, with plenty of large, plump, unbroken buds, in order to insure a crop of fruit each succeeding year. The two shoots, managed as above directed, will produce a plenty of both well matured wood and buds. I have had them twenty-five feet long, and measuring for two thirds the distance three fourths of an inch through. At the fall pruning they should be cut back, according to the strength of the vine, to eight or ten buds each, beginning to count with the fourth bud from the stem, and counting outward, reckoning the three buds nearest the stem as not fit to bear fruit. An inch of blank wood should be left outside the outermost bud, to guard the bud from drying up.

In the spring the buds should be all examined, and thinned out to four or five on each cane, so that each bud is left in the best position possible along the cane. A small stake, say an inch square and thirty inches long, should now be placed firmly in the ground, near the out end of each cane. Small tacks driven not quite home, in each stake, four to six inches apart, to keep the strings from sliding down as the cane gets loaded with fruit, will be an advantage. The canes should be tied just

high enough to keep the bunches clear of the ground, and no higher, as the nearer the ground the warmer and more moist will be the atmosphere, especially if the ground is kept clean and mellow. I have tried it many times, with the thermometer, both by day and by night, and have always found that the atmosphere at six inches from the ground is from six to eight degrees warmer than at six feet; and when cold dry winds prevail, the difference will be much greater; and the moisture caused by evaporation and capillary attraction, from a well cultivated soil is the best preventive of mildew, the worst enemy the grape vine has.

The three buds on each cane nearest the stem, alluded to above, should be left in the spring till they have started and grown a few inches, then select the best one on each side of the main stem, to train as fruit bearing canes for the next year. Manage them as you did the other two last year, training them along the rows. You can tie them to the same stakes above the fruit bearing canes. They will then be in the best position to receive the light and heat of the sun, in order to mature their wood and buds, and also help to protect the fruit now growing from the direct rays of the sun and cold drying winds. The other buds remaining near or on the main stem should be rubbed off. The fruit bearing canes should be watched, and when the buds have well started, they will show at least two bunches each. As soon as you can ascertain which is the largest and most compact, take the other bunch away, in order to have large, well developed bunches and berries, with rich juicy pulp, instead of small, immature berries, more skin and seeds than anything else. The new shoots coming out from the fruit bearing cane, on which the fruit is borne, should be pinched off a little beyond the third joint outside the outermost bunch. All summer pruning should be done with the thumb and finger. No summer pruning ought to be done with the knife or shears, except a cane breaks down with the weight of its fruit, or by accident.

Summer pruning is but little work, but it must be done at the right time and in the right manner. A mistake or neglect in this can never be remedied. The vines, through the growing season, should be looked over at least once a week. Any one, after a little practice, will, as soon as he casts his eye on a vine, see at once where his thumb and finger is required. A quiet walk along the rows, and taking care not to do too much, is all that is necessary.

At the fall pruning the canes that have borne fruit this year should be cut clean out, as far back as may be, and the two new canes shortened to their proper length as fruit bearing canes for next year. An additional bud may be left on either cane, as the vine increases in size; and in some cases three of these shoots may be brought out as near the main stem as possible, and trained in the same manner, to become fruit-bearing canes the next year.

Great care should be taken not to allow the vine to overbear. It is much better to have the same weight of fruit in large, well matured bunches and berries, than in small, tough-skinned, immature fruit. There is a certain amount of fruit matter in the vine to be elaborated during the summer, and a certain amount to be deposited for the next year's use. If this amount has to be distributed among too many bunches or berries it must necessarily depreciate their richness. These facts cannot be too strongly impressed on the mind of the vine dresser, whether the fruit be raised for the table or for making wine.

This plan of pruning and training will suit any variety of grapes, but more especially the foreign kinds. The American varieties will bear

being being trained higher—the Catawba and Isabella in particular, as they are not so subject to mildew. But of one fact I am certain—*the nearer the ground the richer the fruit*, whatever the variety. Air, light, warmth, and moisture are all needed to cause a vine to flourish; but the fruit itself should have one of its own broad leaves quivering over every bunch, to shelter it from the direct rays of the midday sun.

Irrigation should never be resorted to after the first year. A good sprinkling over the top, of a warm still evening, when the berries are about half grown, might be of great benefit, but to soak the roots with water in the summer is calculated to lessen the richness of the fruit.

A friend of mine who cultivates from sixty to seventy thousand vines, came to me in the very dry summer of eighteen hundred and sixty-one, and said the ground was so dry he feared his crop would be very light, and said he had a great mind to irrigate. I told him what I would do. He went at once and bought a water cart with a very fine sprinkler, went through his whole vineyard, taking four rows at a time, on a still moonlight night. This he did three different times between the setting of the fruit and its beginning to ripen, each time creating a fine shower all over the foliage; and although he did not make as large a quantity of wine as the year previous, it was much richer, and is now selling at a dollar a bottle.

I could adduce any amount of reason why the renewal long cane system here recommended is preferable to the spur system of pruning practiced by many:

First—You make less cuts on the vine.

Second—You can distribute the bunches singly along the canes, so as to prevent their crowding and locking each other.

Third—You can choose the *very best buds* on the vine for fruiting, and place them in the very best possible position.

Fourth—You can keep the vine and its fruit nearer the ground, and thus avoid that terrible scourge of the vine, the mildew.

But this essay has already swollen to an unreasonable length, and I fear the patience of the committee will be exhausted. I hope they will forgive me. I can only plead in extenuation the importance of the subject. But to do it full justice would fill a book as thick as a cheese, and I can say no more now but to express my hope that this boon of a beneficent Providence to the people of California may be duly appreciated, and that the men placed in this Garden of Eden to dress it and to keep it, will do their duty and find their pleasure in doing it.

ESSAY ON THE CULTURE OF THE VINE.

BY DR. J STRENTZEL.

FOR WHICH WAS AWARDED THE SECOND PREMIUM.

The author, in submitting this "Essay on the Culture of the Vine," begs leave to define the views governing him in the selection of a standpoint from which to treat upon this subject—one which could hardly be exhausted in a voluminous work, much less so in an essay destined for distribution throughout our State. He designs to discard the repetition of unimportant and known facts, treated most volubly in many works on grape culture, but will endeavor, mainly, to elucidate controverted points; his observations, culled in distant vine lands, shall be only guides to help him draw correct inferences from facts as they present themselves to the practical vigneron in California, and he believes that the object of this essay will be fulfilled by confining himself to a succinct statement, according to his experience, of the best method of grape culture adapted to California.

The location and aspect of the vineyard, and the component parts of the soil, exercise a paramount influence on the quality of the grape, hence, we find the product varying in countries, districts, adjoining vineyards, and even on a small plat of ground; hence, the proper selection of the location for a vineyard is of the utmost importance. The peculiarities of our climate admit of greater latitude in selection, and crown with moderate success the use of soils which, in countries otherwise blessed with copious and frequently recurring showers, would be inadmissible. For this reason, an aspect otherwise considered unfavorable does not entirely shut off success, but if we wish to attain a high degree of excellence, this does not absolve us from the necessity, especially if the product of the vineyard be destined for wine, to select a location sloping gently to the southeast, with an open aspect to the south and west. Such a location will secure a full exposure to and yet mitigate

the scorching rays of the noonday sun. Besides, the aspect due south is less favorable here, as the soil on the southern slopes is in most cases less fertile.

The component parts of the soil must be favorable to the retention of sufficient moisture for the nourishment of the vine, and yet permit of perfect drainage. It is not enough that the surface attests its fertility by a luxurious growth of indigenous plants. The subsoil should be sufficiently porous to prevent water stagnating during the rainy season. Hence, heavy clay soils are inadmissible. The product of such soils is a superluxuriant growth of wood, but the fruit is scanty, irregular in size, late in maturing, and of insipid flavor, lacking all the elements necessary for a good wine. A mellow loam, easily worked, and of sufficient tenacity to retain moisture for the thrifty growth of the vine, without irrigation, will give all the essential elements requisite for a vineyard. A red, loamy soil, if of sufficient depth, and produced from the disintegration of adjoining rock formations, is next best; but if the rock near the surface is of a hard sandstone, the growth of vines and fruit will be scanty. A third class, and very extensive one in some parts of our large valleys, consists of gravelly, loamy soils, which will rate according to their fertility and permeability.

As all of our agricultural lands have none or but little of the elements essential for the growth of plants exhausted, and the soil is in every sense an alluvial, and produced from the disintegrated strata of the adjoining rock formations, we can well dispense with a minute chemical analysis of a given soil, but use our critical acumen, in that respect, to learn from the natural productions its capacity for fertility and drainage.

Many persons taken in by the romantic associations which the colored descriptions of the vine-clad hills of France, or by the Father Rhine, convey to the mind, advocate indiscriminately the practice here. In those countries favored less by nature in the extent of suitable land for vine culture, their humid and cold climate often destroying, or at best, impairing successive crops of grapes, it is of the utmost importance to select land for a vineyard on a hill side, on account of the perfect drainage which is to be had only in such a locality, and also that the land should slope southward, to afford shelter from the northern winds, and to concentrate each ray of the retreating sun upon this favorite fruit. The scarcity of those sheltered places causes each sunny nook to be occupied by a grape vine, whose nourishment is scraped in the valley, and by toilsome labor, often on the backs of men or women, conveyed up the rugged heights. After all this patient toil, the scanty beverage obtained would hardly impart to our gustatory senses visions of ambrosial nectar. Indeed, places are few and far between where the soil and proper location, as to altitude and aspect, are most favorably combined to give to certain vineyards and vintages a world wide reputation.

In many respects, California is highly favored by nature for a wine country. A network of mountains affords the necessary shelter from the prevailing winds, and the high grounds are free from the nightly condensed vapors of the low valleys, while the dry season extends indefinitely the length of time necessary for the perfect development and ripening of the grape. Few countries can boast of the favorable climatic conditions which permit the already palatable fruit to remain upon the vine three months longer, subject to the laboratory of solar rays, converting it into delicious raisins or ambrosial juice. With all these advantages in our favor, we cannot with impunity plant a vineyard where we wish, but only in locations offering most favorable conditions. Innu-

merable little valleys, rich in all the elements of fertility, formed from the debris of surrounding hills, and perfectly drained by nature, afford all the facilities for cultivation, which costly labor expended on a hill side could never compete with.

PREPARATION OF THE SOIL.

Land for a vineyard, if new, should be grubbed and cleared perfectly, the natural growth burned, and the ashes distributed evenly over it. Old land should be heavily manured, to renew its former fertility. In either case, the soil should be ploughed deeply, subsoiled, and lie fallow one season. Before planting, it should be ploughed again, and well harrowed. According to the extent and location of the vineyard, roads, to facilitate subsequent operations of culture, gathering, and transporting the grapes, should be surveyed and marked out. It is advisable that the roads remain unploughed, but the grass and weeds should be mowed, thus preventing the inconveniences of dust.

DISTANCE TO BE PLANTED.

In vineyard culture, six by six feet is as close as admissible, and eight by eight feet is fully required by the vines. The rows should, as much as practicable, run north and south, east and west.

If the plat of ground is not a parallelogram, run a base line its whole length; on this measure and stake the distance between the rows you design to plant, the stakes to remain stationary as guides. At a right angle with the base, stretch your line the whole length of the row, and measure and stake out the row. Repeat this operation until the whole of the land is laid out.

Some advise to checker off by stretching lines along the rows, crossing the same at right angles with a line; or to use a line with the distances on it, marked with colored cloth. Unfortunately, the constant variation in the length of such a line, consequent upon its constant extension or contraction by loss or absorption of water, makes such a process impracticable unless a chain is used; still, the use of a measure twelve or sixteen feet long is economical, expeditious, and insures sufficient regularity.

Should the soil be of even richness, say thirty inches deep, and thoroughly pulverized that depth, the planting would be a rapid operation, merely requiring the removal of the survey stake, enlarging the hole with a crowbar the proper depth, and inserting the cutting to such a depth that the topmost bud remains one inch above ground, and replacing the stake two or three inches from the cutting along the line. But as those favorable conditions are seldom supplied, it is advisable, and fully repays the cost, to have, at the proper distances, holes dug at least thirty inches deep in good, and deeper in stiff or rocky soil, twelve by twenty-four inches in size. The holes should be, before planting, filled four to six inches with broken bones or well decomposed manure, and at planting filled in with the best top soil.

Many controversies have arisen from varying opinions as to the proper length of grape cuttings preferable for planting, the disputants entirely overlooking that the design of nature governing the growth and extension of roots admits of no variation, the rootlets enlarge by the formation of cells at the extremities, and those cells are formed by the pabulum supplied by the surrounding soil. To secure the newly formed and

expanding roots from the effect of protracted drought, long cuttings are indispensable, unless the condition as to the supply of moisture and shelter from the deeply penetrating heat are otherwise fully afforded; even should a shallow planting be preferred, a long cutting, coiled up, can be used, and yet furnish an extended surface for the emission of rootlets. Hence, we prefer cuttings not less than eighteen to twenty-four inches long.

Yet, we have to decide whether to use cuttings or rooted grape vines. Whenever cuttings can be obtained of thrifty growth, thick, short, jointed, well ripened wood, and of proper length, and can be planted early in the season, they are preferable in vineyard culture, as the first set of roots are undisturbed in their natural inclination to grow to their best advantage, and soon overtake rooted vines. Some foreign varieties, yet scarce, and of slender growth, it is preferable to transplant when rooted two years in nursery. Yearling plants have but scanty roots, and those get so mutilated in the process of transplanting that they are nearly worthless. The lower end of each cutting should be cut smooth and obliquely, close to a bud, and the jagged or bruised roots of a rooted vine pared off. The lower half of either should be immersed in running water in a shady place for several days before planting.

In the selection of varieties, we should be governed by the use to be made of them; some are most desirable for the table or for raisins, as the Muscat of Alexandria, Rosa of Peru, and Black Hamburg; others for wine, as the Chasselas, Catawba, and Mission Grape; and some, if fully matured, answer all purposes. So far as experience goes, all the choicest foreign varieties thrive here remarkably well, if anything like the conditions governing their growth are supplied. Of those there are none that surpass, in all desirable qualities, the Chasselas de Fontainbleu.

Having succeeded in planting our vineyard, our work for the first season will consist in keeping down the weeds by the use of a plough and hoe, and should the soil not be sufficiently moist to keep up a thrifty growth, a few gallons of water to each vine, applied so as to reach the roots, will insure a vigorous growth and repay the expense many times. Should the growth be so luxuriant as to cause the canes to drop over, it is necessary to top them enough to insure an upright growth.

The second year, the previous year's growth is pruned to two buds, and after the first ploughing is performed and the vines staked, there is less danger of accidents by breakage, the straightest and stoutest shoot is selected as leader, and when grown sufficiently, tied up securely with strips of cloth, the other is cut off, as are all the suckers which may sprout up. When the leader grows to twelve by fifteen inches, the tip should be pinched off, and the operation repeated when necessary to insure an upright growth. The laterals, this year, are permitted to grow unchecked.

In the subsequent cultivation of the ground it will be well to attend strictly to the general rule never to plough or work the ground when it is wet; to keep the soil well pulverized and free from weeds, and never to cultivate other crops between.

In proportion to the care with which the operations of staking, suckering, and summer pruning is attended during the first, second, and third year's growth of our vineyard, will be our reward in the beautiful symmetry of the vines, their thrifty growth, and abundant fruits.

At this stage we have to decide the future shape of our vine, as by it the future pruning is governed. All our observations favor the opinion that in this climate grape vines should be trained low, after the renewal spur mode of pruning, on account of economy, which is not the least

consideration, and on account of shelter thus afforded to the vines from cold currents of air—at the same time, sufficiently high that the bunches of grapes do not trail on the ground, which would subject them to injury by the wind tossed branches, and, later in the season, when the ground gets damp, they would rot; also, from the particles of dirt getting lodged between the grapes, difficult and tedious of removal. There are but a few varieties, of which the Catawba is one, which, on account of their peculiar growth and bearing, do better if trained on a trellis. The leading branches or arms of such should be extended six or eight inches above the ground, from which the growing canes are trained and pruned after the renewal mode.

The winter pruning the third season will require to be conducted with judgment. Such vines as are too slender to form an upright stem are cut to two buds; those that are stout are cut to twelve inches above ground. Of the former, one cane will be selected for a leader; of the latter, two uppermost buds will grow two canes, the lower ones, if any, being cut out. The summer pruning is conducted as that of the former year, and the main trunk, now formed, should be yet supported by a stake—the canes topped when they get about three feet long. The laterals should now be pinched, whenever required to check the overgrowth and favor the development of the main trunk and of the next year's bearing wood. A well grown and properly pruned vine will acquire this season a self-supporting stem, and the appearance of a dwarf tree.

The fourth season, at the winter pruning, the two canes should be cut to two buds each, from which four canes will be allowed to grow, and all sprouts removed as soon as they commence growing. The summer pruning will be conducted on the principle of former years.

By this time the vines should begin to recompense us for our labor; and to develop the finest grapes will require proper care in summer pruning, as explained below.

The subsequent annual pruning is conducted strictly on the principle of adapting means to ends. Thrifty vines, growing in fine rich soils, can be burdened gradually with from five to eight bearing canes. The winter pruning should be performed directly after the fall of the leaf, as any delay is at the expense of successive crops. Vines pruned late are apt to be injuriously depleted by the flow of sap, which assertion will hardly require any argument.

PRINCIPLES GOVERNING THE PRUNING.

At this point we reach another Gordian knot. Many persons, basing their assertions on experience, declare that it is injurious to check the natural growth of plants, especially the vine, as it tends to curtail their longevity and deteriorate the quality of the fruit; that by curtailing the length of the growing canes we destroy the "balance of power" between them and the roots, and that the vine must eventually perish from that cause. Others again, *in extremis*, advise to nearly denude the vine of foliage and take off the principal growth of wood. Now, to these it is hardly necessary to answer—though the proceeding, once tried, is an experience dearly bought. So we take the responsibility of advising all new beginners not to follow it.

It is not so with the first class. Now, we assert that judicious pruning is indispensable to the production of fine fruit, to which, probably, the experience of most cultivators will assent; but, we further assert that there cannot be a "balance of power" lost, because the growth of

roots is governed by the growth of the branches, and by curtailing the superfluous wood we obtain an extra supply of nourishment for the fruit or for new wood, as the case may be. If a branch is topped off it does not increase the amount of sap in a tree, because each part has its certain quantity, and there is no more absorbed by the roots than what the lungs—*id est*, the leaves—can elaborate or bring in contact with the air.

If the soil contains only the amount of fertility needful to develop a thrifty growth of the plant, very little pruning will be necessary, as at a certain stage the growth of wood is checked, and the fruit absorbs all the prepared sap; but even in those happy cases, art has to assist nature whenever her children are by civilization pampered. We have to check its fecundity by removing a large proportion of fruit, for the benefit of the remainder. We must curtail the luxuriance of the outgrowing branches by pruning, to keep them within our reach. We must exercise a redoubled care when the fertility of the soil or the peculiarities of growth of certain plants like the vine cause them to run wild in the formation of wood, when our desire is to obtain fruit. We notice that vines growing luxuriantly long after the season for ripening the fruit is past will not pay—there is abundance of foliage and wood, but the grapes are scattered on the bunches, of all sizes, green and ripe intermixed. All such vines must be pruned with the most assiduous care. We should begin the pinching process in time, and reduce the number of canes, that the vine may have an open head, with the fruit accessible to light and heat. If it still outgrows the pinching, check the rampant growth with the knife, by pruning above the topmost a fully grown leaf. Follow the same with the laterals, and in due season, if the soil is not stiff and clayey, and unsuited for a vineyard, our labor will be repaid with good fruit.

We have been at length in discussing the points of summer pruning, because the renewal mode of spur pruning is especially adapted for vineyard culture in California, and this requires, particularly, persistent summer pruning. It should commence by pinching the topmost bud as soon as the canes have grown two leaves above the topmost raceme or blossom. This will strengthen and develop the wood at the base of the cane, and prevent their breakage by heavy wind. This is the time to remove all suckers, leaving only the desired number of the strongest canes. With the advancing growth the process is again repeated on the new topmost shoots; then the laterals will expand. These should be shortened above the third leaf. As in vineyard culture it is almost impracticable to perform the work in the exact necessary time, the overgrown cane tops can be rapidly shortened in with a knife, with the precaution to spare three or four leaves above the fruit, which will leave the length of canes about three feet. The process will have to be repeated when the new growth requires it, but with this caution, not to destroy the old, fully grown leaves, and each new shoot to be cut above the topmost grown leaf.

The culture of the soil has been above referred to. It remains only to mention that after the winter pruning the ground around the vines, at least twelve inches, should be carefully scraped off to the depth of two inches, to facilitate the further culture, and to kill insects or their larvæ, which select these places as their winter dormitory.

To prevent the exhaustion of the soil, all the refuse winter prunings should be chopped in pieces of ten or twelve inches in length, scattered evenly over the ground; and as soon as the vegetation starts a few inches with the advent of the rainy season, it should be turned under with a

one-horse plough—the subsequent cultivation to be made with the bull-tongue and horse hoe, without disturbing that layer.

Barnyard manures should be well decomposed, and applied early in the season. Bones and all other phosphates of lime are the best fertilizers. The application of fresh slaked lime will benefit any soil, especially one which is heavy, tenacious. The lime should be ploughed under in its caustic state as hydrate of lime, to produce immediate beneficial effects. A composition of about ten parts of hydrate of lime and one part of common salt, well mixed together, and a handful of it sprinkled after the winter pruning on each vine, besides its fertilizing properties, would be especially beneficial in dislodging insects which hide under the loose bark.

Irrigation, with a few exceptional cases, is most injurious in vineyard culture.

The only disease to which our vines are subject is mildew. Of the many preventives which have been tested here, sulphur is by far the most efficacious. Its particles coming in contact with the spores of oidium destroy their vitality, and as brimstone is also antagonistic to insect life, it is in a great measure a preventive of their depredations. To be successful, the buds at the time of frondescence should receive a good sprinkling, again when the blossom racemes are fully developed, and a third time when the grapes are of the size of small peas. Some contend that the dusting with finely pulverized clay has the same effect, but this does not conform with our experience. Others advise the use of salts of copper, to which we emphatically dissent. All compounds of copper are virulent poisons, and even in small quantities, though acting slowly, surely destroy animal life.

The author closes with the hope that however imperfect, from the nature of the subject, this essay may be, it will prove the means of aiding some of his fellow wine growers in their enterprise in extending the culture of the vine in California.

"'Tis the vine! 'tis the vine!" laughing myriads resound,
"Hail, hail to the wine tree, all hail!"

ON THE CULTURE AND CURING OF TOBACCO IN CALIFORNIA.

BY THOMAS EDWARDS, OF SACRAMENTO.

FOR WHICH WAS AWARDED THE FIRST PREMIUM.

The raising of tobacco in this State is perhaps attended with more difficulty than in the Eastern States, owing to the dryness of the soil at the time of transplanting from the seed beds to the field where the plants are to be grown. But this difficulty is more imaginary than real, for if it is done with care and proper attention there will not one plant in a hundred fail to grow. The system which I have followed for three or four years with success, I hereby proceed to give in detail.

SEED AND SEED BEDS.

The first essential point to get good plants is to procure good seed. I prefer California grown seed, if selected with care, having reference to quality more than quantity. If tobacco growers will select their best specimen plants for seed, California will in a few years become as famous for her fine tobacco as Cuba is now.

The seed beds should be prepared about the first of February, and on good soil, which is sufficiently porous and friable, so as not to bake after too great an application of water. The ground should be dug up deep, and well pulverized, then covered with brush heaps, which should be burned, as the heat kills the ant seed and larvæ in the ground, which would otherwise hatch in the early spring when the plants are young and tender, to their great injury and oftentimes total destruction. The deposit of ashes also strengthens and accelerates the growth of the plants. After burning, dig the ground over so as to mix the ashes well with the soil, then tramp it down well with the feet as evenly as possible, then rake very lightly with a fine iron or steel rake. Mix the seed with ashes at the rate of one tablespoonful of seed to two quarts of ashes, which will be sufficient to seed a bed of two hundred square feet. Sow this mixture of seed and ashes as evenly as possible, and wet down well with the sprinkling water pot.

For a field of ten acres there should be two or three beds of this size sown at different times, the second about the middle of February, and the last the first of March; and more of these beds, if you have time and inclination, so as to have plenty of plants from which to select only the choicest. The plants in the seed beds should not be allowed to grow so thick as to crowd each other, and should be kept free of weeds. The safest time to transplant is in the month of May, although good tobacco may be produced from plants set as early as April or as late as the first of August, but the first are liable to injury by being broken down by the high winds which prevail in the early part of the season, and the last to be cut off by premature frost, as it would not mature before the latter part of October. Plants which have leaves about the size of a half dollar on the first of May, are suitable for transplanting.

TRANSPLANTING TO THE FIELD.

As weeds will begin to grow long before it is time to transplant the tobacco, these must be kept down by shallow ploughing until the time of removing the plants from the seed beds to the field; then the ground should be ploughed deep, and afterwards harrowed, and rolled down, and marked off in rows about three feet and a half apart. A good implement to do the marking with is to take a piece of scantling ten and a half feet long and set teeth at distances of three and a half feet apart; then set teeth two feet apart to mark right angles, and at the places of intersection set the plants. This will make the plants three and a half by two feet.

The most important part is now to come, and too much care and caution cannot be exercised to see that this part is well done, as a little extra pains in planting will be well repaid.

Let each man be provided with a convenient vessel in which to carry his plants, and a sharpened stick to thrust to the bottom of the plant to be raised, which should be done by a prying motion of the stick, being careful not to injure the tap root of the plant extracted, nor damage the adjoining plants not large enough to be used at the time. The watering pot may be used upon the bed with benefit to the remaining plants, after removing others for the field plantation.

If a stick or dibble is used to make the hole to receive the plant, be sure that it is plunged sufficiently deep into the ground, so that the tap root will not be doubled up on being inserted into its place, as this will be fatal to its growth. The earth must be pressed firmly about the root of the plant, which can be rapidly and effectively done by thrusting the dibble each side of the hole in which it has been inserted. Set no deeper than the plants grew in the seed beds.

Supposing you have six hands, four should be employed in setting plants, and one to follow with water, to put one half a pint in the dish-like circle left around the plant by the person who set it. The sixth man should follow with a basket of straw and put a small handful over the plant, so as to cover it up immediately after it has received the water. The straw should be raked off with a common garden rake two or three days after the plant has been thus set.

This process may seem tedious, but it insures the growth of nearly every plant, however dry the soil, and the number of hands indicated will set about six thousand in a day.

If the above course had been adopted by tobacco raisers we should not have heard of so many failures this season in getting plants to live. If the season is cold, the cut-worm may attack the plants as soon as they begin to grow; if so, it is necessary to go over the field early in the morning, as they are readily discovered, and cease to be troublesome on the setting in of hot weather.

As soon as the plants begin to start run through the field with the cultivator, and use the hoe to draw the crusted earth away from the plants, and to bring around them a small quantity of fresh earth. Keep the ground clean of weeds at all times.

TOPPING, SUCKERING, AND KILLING WORMS.

The next enemy to contend with is the common tobacco worm, which will probably make its appearance when the plant is about half grown. This tobacco chewer is of a green color, with prominent horns on the head, and is about the size, when full grown, of the finger. This worm, if unmolested, will soon destroy a plant; hence it becomes necessary to watch a plantation vigilantly for its presence, which will be indicated by its excrements dropping on the leaves under it even before its ravages have marked a plant for destruction

As soon as the seed bud shows itself the plant must be "topped," which consists in breaking off the top of the succulent plant at a point which shall be in height according to the vigor and thriftiness of the plant, generally permitting ten to fourteen leaves to remain on the stem below the point of severance—those being sufficient to grow on one stalk.

After the plant is topped the suckers will start, which will require the field to be gone over twice a week to remove the latter. Priming the tobacco consists in taking off three or four of the bottom leaves, which may be spread in the shade and cured so as to make a very good article for smoking.

CUTTING AND HOUSING.

The tobacco house should be ready by the first or middle of August, as the oldest plants will probably be ready to cut by that time. The building may be of any dimensions most convenient, provided there is room enough to house the crop. A barn, forty feet by sixty, with posts sixteen feet high, will be sufficient to hold the produce of ten acres of land. The building must be divided off into tiers of racks on which to place the sticks which hold the plants. I prefer sticks about four feet long and about one inch square, split out of redwood, these, in my experience, being the cheapest. The racks should be about three and one half feet apart, and strong enough to bear the weight of a man.

When the leaves become spotted the plant is fit to be cut, but will not be injured by remaining standing a few days longer. If cut before mature, it will cure green. Use a common butcher knife, and split the plant from the top to within four or five inches of the bottom, and cut the plant off near the ground and lay it down to wilt, being careful not to let it "sunburn." The safest way is to cut late in the afternoon, and remove it from the field immediately after the dew is off in the morning. Hang it on the sticks before loading it on the wagon—from six to nine stocks to a stick, according to size of the plant. After being put on the sticks it must be placed on a scaffold, which may be arranged in the field under a shade. The scaffold must be so arranged that the plants will hang nearly to the

ground and crowded together compactly. This process is for the purpose of "yellowing" the leaves, and will require from three to five days, although it may remain longer if care is taken so that it does not heat.

When properly colored, the sticks, with the plants remaining on them, must be removed to the racks in the barn already prepared for their reception, hanging each stick so far from the preceding one that the plants are not allowed to touch each other. It will probably need no further attention until after the fall rains set in, when it will be sufficiently cured and in "proper case," that is, damp enough to be handled, and pliable as buckskin. It should then be taken down and removed from the sticks, and "bulked" on a floor raised from the ground sufficiently high to admit of a free circulation of air. To "bulk" it in the best way, the buts of the plants should be laid outwards, and make the length and height of the file to suit convenience, as it is best then to "bulk" the whole, it being uncertain when it will be in just the right case again, and if not too high in "case," will not damage to remain in "bulk" any length of time, but, if in too high "case," it will heat, and must be opened and rebulked immediately.

It can now be stripped and made into "hands," at leisure, but it is best to have this done as soon as possible, for if it sweats in bulk the leaves will adhere to the stock and break in pulling off, thereby both wasting and injuring the tobacco.

When ready to strip, arrange a table sufficiently high for a man to work at conveniently while standing. The operator will then take one stock in his hand at a time, strip the leaves off, and lay them in three piles, assorted as dark, light, and broken, and as enough of each is obtained for a hand, of which about five or six should constitute a pound, tie them up by wrapping a leaf around the buts, drawing the end through in such a manner as to hold it firmly in its place. If the weather is dry during this operation, "bulk" it as fast as handled; if moist, bulking it every night will be sufficient.

In bulking, lay two tiers of hands together with the buts out, having the tops lap on to each other sufficiently to keep the centre even with the outside. Lay continuous tiers close together as possible in the same way, as the more in bulk the sooner it will sweat, which improves the quality of the tobacco very much; in fact, it is not cured until after sweating. If it should get too hot, it must be opened and rebulked, putting the outside on the inside each time, and continue this practice as often as necessary, until it gets cool, when it will keep in bulk any length of time; but the better way, after it is thoroughly cured, is to pack it in boxes or hogsheads, pressing it in with a screw, when it is ready for sale and delivery in market.

In the foregoing treatise I have endeavored to be sufficiently minute in detail to enable the most inexperienced cultivator to raise and cure a crop of tobacco, which, I suppose, is the object the society have in view in offering a premium to induce tobacco growers of some experience in California to give their opinions for publication. Much of the experience gained in the Eastern States is wholly impractical—here the soil and climate differing so essentially, that a cultivator fresh from the East is more likely to fail here on his first trial than a person of no experience whatever, but who is willing to learn from every available source, not despising even "book learning."

That our river bottom lands are well adapted to the growing of a superior quality of tobacco, even rivalling the famous aromatic Cuba, I think there is no doubt. The cost of my crop I cannot precisely deter-

mine, as I raise other crops in connection with tobacco, but I have no hesitation in stating that I think tobacco at ten cents per pound will pay as well as the average of other crops. My crop of tobacco, grown on the bottom land of the Sacramento River, will average from fifteen hundred to two thousand pounds to the acre.

ESSAY ON MILDEW.

BY JUDGE WILLIAM DANIELS, OF SAN JOSE.

A PAPER READ BEFORE THE ANNUAL MEETING, JANUARY 29TH, 1864.

This is a minute parasitic plant belonging to an extensive family of *Fungi*, of the class *Cryptogamia*. The seeds of this plant are so minute that they cannot be discerned without the aid of a powerful magnifier. It is indigenous to every country in the known world. The seeds have so little specific gravity that they will float in the atmosphere for miles, though possessing, at the same time, all the requisites of germinating and propagating their species. In the ground it is universal, but most abundant in rich heavy soil, under the shade of trees, especially those of heavy umbrageous foliage, and it is very fond of getting into rooms that are not properly ventilated. It is quite at home in an untidy kitchen. It will make a lodgment in a pile of clothes that has not been properly aired. It will get into a bundle of hay or straw, or into the middle of a stack of a hundred tons, that has not been properly cured. It will settle and take root immediately on the fractured cuticle of the leaves, young shoots, and fruit of the grape vine, the peach, the apple, and the gooseberry. It will adhere at once to any fissure in the stalk or blades of the wheat plant, the leaves and young shoots of the rose bush, the chrysanthemum, or, indeed, upon any plant whatever where extravasated sap has been forced out of its proper channels. Its name is legion, and its depredations on vegetation are often truly alarming. It is the bane of the husbandman and the vine dresser, sometimes destroying nearly the whole crop of the farmer, in the shape of rust, and at other times destroying the crop of grapes in a whole country, as was the case in France a few years ago, and also in the Valley of Santa Clara, to a partial extent, a few years since. Its ravages are incalculable, and I do not know of any good that can result from its existence, except it be to plague careless, indolent, and ignorant men and women; but it cannot live in a healthy plant, nor in a household where there is a careful, industrious, and intelligent housekeeper. It is quite harmless, except where disease or decomposition has already begun. How, then, shall we treat this ter-

rible scourge? There are many ways of killing it for a short period at a time. Sulphur, lime, snuff, salt, diluted in water—all of them are very good to a certain extent. The reason why either of these is of any service is because they absorb the crude sap on which the mildew lives, and without which it never could have secured a lodgment, and it is liable to come again at any time when circumstances suit. Besides, if it does not come again, it always leaves its mark, in the shape of a small scab, very much deteriorating the richness and beauty of the fruit, flowers, and foliage of the vine, the tree, and the plant. How, then, shall we guard against this insidious enemy, and rid ourselves of this poisonous pest? I would say, don't let it have a chance to take root, or anything to feed on. How can I hinder it? I will tell you all I can. In the first place, a tree or plant is not a locomotive. It has not the power in itself to choose or change its location. Wherever the seed germinates and sends up its plumule, or wherever the hand of man has planted the tree, it must remain. It cannot change its boarding house or lodging, nor emigrate to a foreign country, by any inherent powers of its own.

If the seed springs up in unsuitable soil, or in any uncongenial climate, it must stay there (unless some extraneous power interferes) and be subject to the pernicious consequences of unsuitable soil or climate, which is sure to induce disease. Improper food will cause disease in animals; so it will in plants. Unwholesome air will also have a deleterious effect on both; and disease in plants, as well as animals, will be sure to affect the cuticle or outer skin, interfering with the regular perspiration so necessary to the health of the body—and in plants it will often cause eruptions, ulcers, or fissures in the skin of the leaves, young shoots, and even the fruit and blossoms. From all these eruptions viscid matter will issue, on which the seeds of the mildew settles and spreads its poisonous roots, and sends up suckers in every direction. The louse on the rose bush, the borer in the apple tree, are produced from eggs dropped into just such eruptions as these by their far seeing parents; and many varieties of the mildew will, under favorable circumstances, in twelve hours from the time the seed takes root, mature its seeds and send them on the wings of the wind to find some other suitable location. I am confident that some plants imbibe the germs of the *fungi* in their food—as I have seen it in the interior of the turnip, potato, and beet—produced, no doubt, in like manner as worms are produced in the animal stomach. How necessary, then, it is that plants should be supplied with suitable food and a climate congenial to their character, habits, and necessities. In order to accomplish this, a thorough practical knowledge of vegetable physiology is of the greatest importance, not only in the general application of the term, but embracing all the peculiar characteristics of the several varieties, species, genera, classes, and families of the vegetable world. And now, I suppose, some one will laugh at the idea that all this tedious routine of study is necessary to enable a person to raise good wheat, rich fruit, or beautiful flowers. Yes, sir; and you must also understand something about the various kinds of soils, climate, meteorology, etc., so as to give every plant its proper food and suitable breathing air; I know that some of the choicest fruits, some of the largest and handsomest vegetables, have been raised by persons who never gave a thought to the causes which produced such results, and who will sometimes even boast that the articles exhibited had never had any care or attention bestowed on them, and never were noticed until their extraordinary size or beauty attracted the notice of the curious. A luscious bunch of

grapes—a large, delicate, and richly flavored peach, apple, pear, plum, or strawberry—a beautifully tinted rose, pink, chrysanthemum, or hyacinth, with all their rich and delicate fragrance, so grateful to our senses—will sometimes show themselves to the wondering observer without any aid or protection from those on whose domain they ventured to intrude.

But these are mere accidents, or rather providences, droplets from above, to set us to thinking. But, says some one, I thought you was going to write an article on mildew. That's true; but I want my friend and myself to get as far away from it as possible, (not from the subject, but from the mildew.) In order to do this it was not only necessary to show the origin, character, and habits of the poisonous pest, but to show how its influences can be fenced out from our kitchens, our bedrooms, our wardrobes, our laundries, our vineyards, our orchards, our nurseries, and our field crops and fences. Go and plant your vineyard or orchard in a stiff cold soil, (especially if not thoroughly underdrained,) where late spring and early autumn frosts prevail, or sow your wheat on the same kind of soil or location, and you will be sure at some time or other to see or hear of the mildew or rust bidding you good morning. Shall I tell you of the disappointment of the nurseryman who sees at the latter part of the season his apple seedlings all covered with mildew like a hoar frost, just because he sowed the apple seeds in a stiff cold soil, or in an unhealthy exposure? Shall I hint at the vinedresser, who frets and frets at the small quantity and inferior quality of his grapes or his wine, when the mildew has placed its seal on his fruit and his vines, because they are planted in a stiff cold soil in an improper aspect, too near to large heavy foliaged trees, or too crowded together? Look all over this State, count the thousands, nay millions of peach trees denuded, naked, with nothing to cover them but moss or cracked bark. Look, as you pass through the orchards in the months of April or May, and count, if you can, the countless number of apple trees whose young foliage and tender shoots are as white with mildew as if the miller had been shaking his sack over them. Just look into some of the vineyards in this State in the months of July or August, if you can bear the sight, and see the sad havoc this ravenous enemy of vegetation—mildew—has committed, all on account of unsuitable soil, improper exposure, or injudicious treatment. But I cannot write much more now. I did not think when I first began that I should have to say one half of what this article contains, but having shown the origin, character, and habits of the mildew, I thought it necessary to throw out a few hints as to the manner of guarding against this infamous pest. I have shown that it carries the black flag of piracy, and unless a thorough blockade be at all times maintained, it will creep into our vineyards, our orchards, our gardens, and our dwellings. It is not the primary cause of disease; but wherever disease, decay, or decomposition has taken place, it will fix its ruthless fangs, and under suitable circumstances, generate almost all other diseases to which the vegetable world is liable. What I have written is the result of a long life of practical experience and observation. I have used some pretty strong expressions, but I have been combatting an insidious and deadly enemy, and in such a warfare I wish to wield the keenest and heaviest weapon available; and if the facts here stated attract the attention of one or more of my fellow cultivators, so as to set them to thinking, and eventually induce them to join in the fight against the common enemy, I shall feel amply rewarded for the time and attention bestowed.

MINING REVIEW FOR 1863.

The past year has been one of such unprecedented activity in the discovery and development of the mineral interests on this coast, and particularly in this State, and the following review, prepared for and published in the "Mercantile Gazette and Prices Current," in a small compass presents so complete a history of the year's transactions in this department of our industry, as to warrant an insertion in this report:

Mining, from its first settlement the primary pursuit in the industry of California, is fast expanding into a leading interest on the entire Pacific Coast. Pursued by the simplest means, and restricted in its earlier stages to a single object, it has gradually been extending until all the precious and many of the useful metals, as well as the more common minerals, have been made the subjects of its enterprise. Confined at the outset to the gathering of free gold, a trifling expense and the rudest contrivance were ample for its successful prosecution. With the partial exhaustion of the placer diggings, the more costly and elaborate business of working the auriferous quartz was entered upon, and finally the still more complex and expensive treatment of silver ores, calling for heavy investments of capital and the employment of a vastly greater amount of skilled labor and metallurgical science. From gold alone we have gone on till silver, copper, coal, and quicksilver have successively been brought within its range, and taken rank among the mineral staples of the country. Step by step this branch of industry has enlarged its area, and pushed into new provinces, until we find it busied with almost every species of mineral, and standing side by side with agriculture and commerce as an agent of profitable employment and productive wealth. That an interest like this should not be overlooked by the political economist and commercial reviewer, will be readily conceded by every one acquainted with its magnitude and promise. As a remunerative field for both labor and capital, it is entitled to the same consideration as these other great sources of material wealth and public prosperity; and we may even count upon its increasing importance till it shall, at no distant day, have attained proportions that will advance it to the foremost rank in our industrial pursuits.

There is, perhaps, no other portion of the globe of like extent containing such a variety and abundance of mineral products as the Ameri-

can possessions west of the Rocky Mountains. Within the limits of our own State there is scarcely a metal or mineral known to science but what is found in quantity sufficient to justify their being worked—if not at present, at least when labor shall have become cheaper, and greater perfection shall have been attained in their modes of treatment. Thus, we have gold, both free and in combination with other substances; silver in all its varieties, of which there are twenty-six recognized by metallurgists; copper, virgin, and with its usual associates, iron, mercury, zinc, lead, tin, arsenic, bismuth, antimony, and platinum, with many others of minor importance, all here in such abundance as render them marked features in the mineralogy of the country, and warrant the belief that they will very soon be extracted on a scale ample to meet every home demand, with a large surplus for exportation. Besides these metals, a great variety of useful minerals abound in all parts of the State, chief among which are coal, salt, sulphur, nitre, alum, borax, asphaltum, chalk, soda, magnesia, and gypsum, with limestone, and different kinds of marble and other building stone, in endless variety. With a field so rich and boundless, it is easy to foresee that the business of mining must grow rapidly on this coast, and hold forever a prominent place among the vocations of our people.

In an annual review of mines and mining operations, the field to be gone over is too extensive to render a notice of individual claims and enterprises expedient or practicable; the most that can be done in such an undertaking being the compilation of a summary of what has been accomplished in the different departments of the business, with an approximate estimate of general results.

PLACER GOLD MINING.

This branch of mining, during the year under review, has been generally prosperous, not only in California, but also in Idaho and Washington Territories, where it has formed the principal business of quite a large population. In this State it has yielded better returns than had been realized for several seasons prior to eighteen hundred and sixty-two, which year, owing to an abundance of water, was one of general success. The copious rains in the fall of eighteen hundred and sixty-one and the spring of eighteen hundred and sixty-two, not only increased the amount of water used in washing, but, by carrying off the immense accumulations of tailings, laid bare new deposits of dust, and greatly facilitated the operations of the miner—benefits that continued to be felt to some extent throughout the year just closed. The low stage of water late in the fall has given those engaged in turning the rivers a better chance than usual for working in their beds. The commencement of these operations has to be postponed until the subsidence of the summer floods caused by the melting of the snow on the mountains. If the first autumn rains raise the streams, as often happens, the time for working is so short that but little can be done; whereas, with low water until a late period, as was the case the past fall, large sums are frequently taken out of this class of claims. Their owners were not generally disturbed this year until late in December, whereby they have been enabled to secure a tolerably fair return for their outlay and labor. The rains that fell about the middle of November, while they failed to interfere seriously with operations in the river beds, afforded sufficient water for several

days' washing in most of the gulch and dry diggings—a thing that does not usually occur so early in the season. Later in that month, and at timely intervals since, rain enough has fallen to afford water enough for working nearly everywhere, except in the more southern counties—a circumstance that was no doubt turned to good account, and large amounts of dust taken out.

Tunnel and hydraulic mining, largely engaged in throughout the central and northern counties of the State, have turned out moderately well during the past year, while some placer diggings, of considerable richness, but limited extent, have been found in new localities. These tunnels, though similar in construction to those driven for exploitation of ore lodes, are undertaken for a different purpose, the object being to reach such deposits of free gold as are supposed to lie too far beneath the surface to admit of the removal of the superincumbent earth, and generally in the basin of a hill having a rim-rock that requires to be cut through to secure drainage. Like the turning of the rivers, these tunnelling operations are apt to be expensive and uncertain, years of the most laborious effort sometimes being consumed in carrying them on. The miner, if he be without capital, performs this labor himself, the work often being pushed day and night, by means of relays of hands, during all this time. In some instances, heavy deposits of gold are found, amply rewarding the adventurous and persevering miner for all his toils, while in others the return is very meagre, or fails altogether. A large percentage of these tunnel and river-bed claims are total failures, the owners frequently losing several years of hard labor, and large sums of money besides. But, with all their hardship and uncertainty, these can hardly be pronounced different in this respect from every other branch of mining. Hydraulic washing is constantly growing in favor, both because of its greater certainty and frequent large returns; but it can only be embarked in by a considerable outlay in the first instance, and requires for its successful prosecution, besides a large supply of water, a sufficient descent to carry off the immense quantities of debris liberated by its operations. It is not, therefore, by every class of miners, nor in every locality where there may be rich deposits, that it can be carried on. Where the conditions are favorable, this style of mining is sometimes attended with munificent results. The range of mining counties extending from Shasta to El Dorado, is the seat of the principal hydraulic operations. In some of these claims many thousand dollars are taken out at a single cleaning up, and but few of them fail to pay their proprietors handsomely, after defraying all expenses, though the latter, between hired labor and water rents, are always heavy. It is in the working of these claims that the immense blasts are in use, a single one exploding from two hundred to five hundred kegs of powder. Their utility lies in the huge masses of earth which they shatter and thus prepare for the ready action of water. In preparing them, a drift is carried under the hill, upon which a face has sometimes been worked more than a hundred feet high. Connecting with this drift are chambers in which the powder is placed, after which its mouth, for a long distance in, is thoroughly tamped with earth. The firing is accomplished by means of a fuse, and many thousand tons of clay, gravel, and cement, are often disturbed by a single blast.

Early in the spring a large number left this State for Idaho Territory, where rich placer diggings had been found the year before. The entire number that had gathered into that country before the season closed, about the first of November, was estimated at thirty thousand. The mines, it would appear, are rich in spots, and though not very extensive,

would have paid largely but for the want of water—a trouble that prevented the great mass of miners making more than common wages, many not being able to do even this. Ditches having been commenced for supplying the diggings with water, it is thought the yield will be larger next season, when it is likely numbers will again repair to that section. Owing to the severity of the winters and the depth of snow, the most of the population leave in the fall, returning again about the first of April. In the latter part of the summer and early in the fall quite an emigration set in towards Arizona Territory, being incited by the reports from that region of rich dry diggings having been discovered at a point some two hundred miles east of the Colorado River. There would seem to have been but little foundation for these rumors, as nearly all who set out returned without visiting the locality, being satisfied with the statements of such as had been through and were coming back empty handed. As nothing more has been heard lately of these mines, it is fair to conclude they did not amount to much.

Mining labor the past season, more particularly in the northern portions of the State, has been scarce, owing to the heavy emigration to Idaho, Reese River, and other remote localities, causing an advance in wages of fully twenty-five per cent.

SILVER MINING.

Of all our metalliferous pursuits, silver mining is the one that for the time being engages most the public attention and absorbs the largest amounts of capital. It is but four years and a half since our people first entered upon this business, which was initiated by the discovery of the Comstock lead about that time, in the Washoe country. Wholly unacquainted with this branch of mining, it is not wonderful that many mistakes should have been made, followed by consequent loss, in these first efforts at carrying it on. Everything had to be learned—not only the management of ores, but the exploitation of the mines, which, besides being far remote and difficult of approach, were situated in a country remarkably destitute of everything needed for their speedy development. That we should be shipping from those mines, in the fifth year of their discovery, twelve millions of dollars worth of bullion, with a good prospect of increasing it largely the next, should be generally satisfactory, however a few may feel sore over the losses they have sustained. To show that this estimate is well founded, we have the fact that Wells, Fargo & Co. sent from their office in Virginia City, during the month of November last, seven hundred and forty-six thousand seven hundred and fifty-one dollars in bullion, which, as is commonly supposed, embraced only about two thirds of the amount taken from the Territory; while many persons conversant with the prospect are of opinion that the product for eighteen hundred and sixty-four will exceed twenty millions of dollars. That it will be sufficiently large to justify the calculations made in certain quarters is not at all probable, these evidently having been based upon the tales of travellers, the representations of stock dealers, and other equally loose and unreliable data.

The argentiferous leads are not confined to the neighborhood of the first discoveries, but have since been found scattered over all parts of the Washoe country. None, however, has elsewhere yet been met with carrying so large a body of rich ores as the original Comstock at Virginia City. Some claiming to be equally rich, but comparatively small, have been found at other points. The localities of the other principal

mines in the region east of the Sierra Nevada, naming them in the order of their discovery, are the Esmeralda mines, a little over one hundred miles south-southeast of Virginia City; the Humboldt, one hundred and sixty miles northeast; the Silver Mountain, sixty miles south; the Peavine District, thirty miles north; and the Reese River country, one hundred and seventy miles east-northeast, embracing, like the other sections named, many districts, and flanked by two of more than ordinary promise—the Cortez, seventy miles north, and the San Antonio, one hundred miles south of Austin, now the principal town in the Reese River region. Besides these, there are many other isolated districts in various parts of the country, all advancing claims to great mineral wealth, and perhaps none the less meritorious from having been less talked about than the others. Thus there is a cordon of districts about Virginia, numbering a score or more within a circuit of as many miles, each containing numerous ledges impregnated more or less with the precious metals, and upon which a large amount of work in the aggregate has been done.

Lying south of Virginia, and extending from the Town of Gold Hill to Carson River, a distance of eight miles, is a tract of country embracing the Gold Hill, Devil's Gate, and Sulphur Spring Districts, containing a multitude of ledges, many of them large and exhibiting fair prospects in the outcrop, and upon which a vast amount of work has been done, operations having been commenced upon some of them in the fall of eighteen hundred and fifty-nine, and continued steadily ever since. Here are scores of tunnels, some of them more than two thousand feet long, and shafts without number, varying in depth from fifty to three hundred feet.

Within this tract, large enough for two or three good sized townships, there is hardly a square mile but has its work of this kind, while in some sections every acre contains its shaft, tunnel, incline, open cut, or other monument of the laborious enterprise of the hardy and industrious miner. In some instances these works are executed by companies, in others by individuals, and frequently by persons who, having nothing to invest but their own labor, have themselves toiled incessantly for years, engaging in other pursuits only long enough to earn sufficient to support them meantime. After being prosecuted for a few months, most of these works were suspended, and in many cases entirely abandoned—the ledges not turning out, so far as explored, according to expectation. Subsequently many of them were resumed, and for the past eighteen months have been pushed vigorously, the success of a few demonstrating that the pay ores throughout this region lay far beneath the surface; and the theory is now held that only great depth is required to establish for these districts a very general success. However this may be, certain it is, the opinion is supported by a number of practical tests, while a few have tended to establish an opposite conclusion. From some of these ledges considerable quantities of pay ore of a medium quality are now being raised, while others promise soon to contribute their quota. Several mills on Gold Cañon and Carson River are now running upon it with results satisfactory to parties concerned.

What has been said of the three districts above mentioned might aptly be applied to several others in the vicinity of Virginia City, as, for example, the Flowery, a few miles east, in which several small mills have been running, in good part on rock procured in the neighborhood, and where recent developments would seem to show that only depth is required to justify the reputation that attached to certain ledges in that district at an early day.

Of the Palmyra District, lying east of Carson River, nearly the same is true. Here, as early as the summer of eighteen hundred and sixty, a great number of ledges were located, and some superficial work performed upon them, but which, failing to develop a Comstock Lead, then the standard, were afterwards given up; and not until a short time since, when deeper sinking disclosed the true character of the leads, did the public come to appreciate the value of this district and perceive the mistake of the early pioneers. In this district one very efficient mill is already at work, with preparations in hand for the erection of others, all to be employed upon the rock in that neighborhood.

To the west of Virginia and on the opposite slope of the mountain range in which the Comstock Ledge is situated, lies the Argentine District, laid out and organized almost simultaneously with those of Virginia and Gold Hill, and which, after attracting a good deal of notice in the fall of eighteen hundred and fifty-nine, when a number of ledges were located and some work done, was afterwards so completely deserted that for a time ownership was asserted to scarcely a single claim there. Here, too, on the renewal of and with a little more thorough work, the leads once despaired of are exhibiting a much more favorable aspect, a few of them having already turned out small lots of pay ore.

A number of other cases might be cited to show that one of the most prolific sources of failure in what are termed outside mines has thus far been the superficial character of the excavations made in prospecting them. In fact this would seem to have been the great trouble heretofore in Esmeralda, Humboldt, and other localities prominent before the public for a number of years, and which, it it not to be concealed, have so far come far short of their early promise. Not but what explorations in an infinity of cases have been undertaken in opposition to the teachings of science and common sense, and millions of money thrown away upon mines that were no mines at all; but still, the great number of failures that have hitherto marked our mining enterprise is to be attributed to the shallow and insufficient character of our exploitations, rather than to the absence or poverty of the ledges themselves. We were, so to speak, spoiled by the character and position of the first silver mine found in the country. The Comstock Ledge, the pioneer on American soil, exhibited at the point of discovery, an immense mass of rich ore in its very outcrop. Lying almost upon the surface were the concentrated sulphurets that, first revealed to mortal eyes, caused so much trouble to "Old Virginia" while engaged in gold washing at that point.

In all their subsequent researches after this metal, our people, keeping the Comstock ever before them as their guide and exemplar, sought only for leads under like conditions. Hence the miscalculations and mistakes which the experience of several years is only now beginning to correct. We have but lately ascertained that only very rarely do the rich ores in these veins lie exposed as in the case of the Comstock, and that whether the adage that "it takes a mine of gold to work a silver mine" be literally true or not, it at lest conveys a wholesome admonition to those who propose engaging in that somewhat precarious business. The miner is beginning to find out that a pick and shovel and sack of flour, though backed up by a brave heart and willing hands, are hardly adequate to the work of driving tunnels and sinking shafts, to say nothing of the mills and reduction works necessary in silver mining. But having at length, after years of tribulation, learned these things, we may be expected now to get on better with a business which, these difficulties mastered, has rarely failed to prove profitable to those engaging in it.

Leaving Virginia and Gold Hill, with their numerous mills and wonderful mines, surrounded by an extensive country full of metalliferous leads, and passing to Esmeralda, the locality of the second important discovery east of the mountains, we find here also a cluster of districts permeated with quartz leads bearing both gold and silver, and in about equal proportions. In some of those districts, especially the original Esmeralda, these ledges are very numerous—in fact, so much so as to form in places a perfect network, leading to much uncertainty and contention, and consequent litigation. In this district there are some eight or ten mills, the first having been erected in the summer of eighteen hundred and sixty-one, and the others along at intervals since—the last and largest, that of the Real Del Monte Company, having just been completed. It is one of the most extensive and perfect in the Territory, and is said to have cost two hundred and fifty thousand dollars. In the outside districts are several mills of less capacity, making the entire number in the Esmeralda region at least a dozen, yet the amount of bullion coming from that quarter has not been large. Of late it is on the increase, and it is thought by those most conversant with the subject that for the future the increment will be large and constant. To account for the meagre returns from these mines, it is said the mills have heretofore been unable to successfully treat the ores, some failing from want of mechanical capacity, and others from lack of metallurgical skill—difficulties and deficiencies that, it is claimed, have now been, in good measure, overcome or supplied. Another obstacle, at least with some of the mills, has been a lack of water—a trouble that threatens always to be a serious drawback to the prosperity of that whole region. A project is reported to be on foot for bringing in a supply adequate for present wants. Should this be accomplished, it would no doubt speedily tell on the bullion product, and tend to a much more rapid development of the mines. In the vicinity of Aurora, the chief town in that quarter, and locality of most of the mills, there is plenty of excellent fuel for generating steam; only water is wanted to insure any amount of motive power demanded by the requirements of the mines. In most of the other districts there is less fuel—in some of them none at all, though in several of these there is quite an extensive water power furnished by the East Fork of Walker River and its tributaries.

In the Humboldt region, the same drawbacks and embarrassments have been encountered as at Esmeralda, only perhaps in an aggravated form. Here, in addition to a most rebellious class of ores, has been superadded a very scant supply of water, and an almost entire destitution of timber. While, as at Esmeralda, there are here no trees in the vicinity suitable for lumber, there is, moreover, very little wood fit for fuel. A few stunted cedars, all of which will be swept away in the course of a few years, is the only growth—there not being within one hundred miles of the Humboldt mines a tree large enough to make a board or any part of a house frame. That they have rich silver lodes, however, and a great number of them in that country, is indisputable. That the mills, of which there have been three or four small ones running by spells for the past two years, should have turned out such an inconsiderable amount of bullion, is explained by the causes already mentioned. Besides, Humboldt was somewhat later getting into the field, and is less easily reached with freights than her southern rival. That another year will tend to advance this district in public estimation, and help to make good the claims put forth by its friends, we verily believe.

Silver mountain, a name first applied to a single district, and afterwards extended, like Esmeralda, Humboldt, and Reese River, to the surrounding region, embracing many districts, occupies an extensive basin formed by the Sierra Nevada on the south and west, and a lofty spur putting out from that chain toward the northeast. This basin, which lies nearly due south from Virginia, is situated on the head waters of Carson River. Its surface is exceedingly rugged, being cut by numerous deep ravines—the channels of the various branches of that stream. The entire region, though east of the Sierra Nevada mountains, is wholly in the State of California, being mostly within the limits of Amador County. The ledges, large and numerous, are remarkably well defined, and under the application of three years' steady labor, are now in a forward state of development. Owing to its isolated position, however, being hedged in by mountain ranges, impassable to teams, but little, comparatively, has been heard of this district beyond its own precinct. Without wagon roads, it has been impossible to get in machinery, and as a consequence there is not as yet a single quartz mill within the district. During the past summer wagon roads were commenced, which, having just been completed, there is now every facility for taking in heavy freights, and arrangements have been made for the erection of several mills early in the spring. Apart from the very promising character of the ledges, there is not among all our silver bearing districts another so favorably situated as Silver Mountain, whether we consider its greater security for person and property, or its advantages for the cheap raising and economical reduction of ores. Located in a community where mining interests are amply protected by legislative enactments, and the laws governing them have become fixed and certain by frequent adjudications; within hardly more than a day's journey of San Francisco, the great mining mart and point of supply; in the midst of splendid forests, suitable alike for fuel and lumber, with a water-power capable of driving a thousand stamps, and enjoying the benefits of a staid and industrious population, a fine soil, much of it adapted to tillage, and covered with native grasses, and a climate highly equable and salubrious, it would seem to open a field alike inviting to the laborer and capitalist; and, unless we greatly overrate the resources of this region, California will be able soon to boast of silver mines quite as rich, and even more profitable than those of Washoe, or any other country outside her borders. At least, we would recommend, at the hazard of seeming a little partial, that such of our citizens as contemplate engaging in this business when the spring opens, take Silver Mountain in their way while journeying to other more remote but less promising localities.

Of Reese River, as a permanent and productive mining region, perhaps not enough is yet known to warrant an absolute opinion of its merits, one way or the other. That a metalliferous country of great extent exists in that quarter is not open to question. Throughout an area fully one hundred and fifty miles long, by twenty-five or thirty broad, gold and silver bearing lodes, some of them rich, at least upon the surface, have been found. In certain localities, as about Austin, the centre of the original Reese River District, these ledges are exceedingly numerous, and, though narrow, and showing but little outcrop, many of them are highly impregnated with the precious metals, silver being largely in preponderance. Should it turn out that these ledges expand, still carrying a good body of rich ores, on being opened to a considerable depth, then their productiveness and permanency may be considered tolerably well, if not sufficiently established. But this is precisely the point that remains to be settled, very few of these veins having yet been penetrated to a depth cal-

culated to dispose of it satisfactorily. A few have been opened to a point one hundred feet or more beneath the surface, others not so much. In a majority of these cases the ledge has been found to expand slightly and to carry an increased amount of ore. In others contrary results have happened. In all, the ores have changed on reaching the water level, from the friable bromides and chlorides to the more compact form of sulphurets, the latter being often associated with antimony and other intractable substances. Hence the difficulty experienced latterly with the mills, and the unsatisfactory results of their crushings since commencing on rock extracted from the deeper mines. Whether the same troubles will attend the working of ores in other districts, where the ledges are larger, and in other respects geologically if not chemically different from those in Reese River proper, remains to be seen. From both the Cortez and San Antonio Districts rumors of recent extraordinary discoveries have lately come to hand, and which, if they be but partially true, would seem to fix for them a brilliant future.

There are at present six or seven mills completed at Reese River, with several more on the way, and orders given for the machinery for a still larger number; and should the mines get no set back, heavy shipments of bullion from that quarter may be looked for next season. A first class mill is now on the road to the Cortez District, where it is to be set up and got to work forthwith. The ledges there, though few in number, are said to be much larger than those at Reese River, and to carry a heavier body of ore. There is also, adjacent to those mines, an abundance of fuel, with a fair supply of grass and water, the latter being tolerably plentiful, except at a few points, along the entire Toiyabe range of mountains, in which these mines are mostly situated. Taken altogether, there is good ground for believing Reese River and its adjuncts, though they may not do all that their more sanguine friends call for, will not disappoint the expectations of such as rest satisfied with a fair return for their outlay and labor.

After having thus glanced at the leading features of the more important mining localities, there remain yet others, whereof some are scarcely less entitled to notice than those already mentioned. Keeping still within the limits of Nevada Territory, we find in the Peavine District, beyond the Truckee—in the Black Rock country, north of Honey Lake—in the East Range, between the Humboldt and the Cortez mines—near the Mountain Well, on the Overland route, and at Silver Hill, a little further north—on the Forty Mile Desert—in Ruby Valley—at the base of the Sierra, about Genoa—on the foothills, at Clear Creek, Washoe, and Galena, and at divers other places widely scattered over the Territory, not only traces, but such large and valuable deposits of this metal as must shortly induce extended operations at every one of the points indicated. At some of them a great deal of labor has already been done, and what further remains to be discovered in this line, or how large may be the product of the lodes hitherto found, the future alone can determine.

Although Washoe has thus far proved itself pre-eminently the land of silver, California, as has been seen, and even Utah, Arizona, and Idaho, may justly lay claim to very rich and extensive deposits of this metal. In several of the northern counties of the State, mixed veins of gold and silver, and in some instances of very fair silver, have been found. On Greenhorn Creek, six miles east of Grass Valley, a number of ledges were opened over a year ago. Subsequent crushings have proved them to be rich, the prevailing metal in some being gold and in others silver.

In Sierra, Plumas, and other counties in that part of the State, veins are being worked for silver, and, as it is stated, with good prospects of final success. During the past summer, a district was laid out and many claims taken up on the eastern slope of the west summit of the Sierra Nevada, in the vicinity of Lake Tahoe. Several hundred people repaired to the spot, and up to a late period the business of opening the leads was going on vigorously. In the Blue Mountain District, lying in Amador and Calaveras Counties, and partially on the summit and western declivity of the Sierra, some extremely rich silver bearing lodes were discovered during the past year, and though scarce anything concerning them has found its way into the public prints, the proprietors entertain a most exalted opinion of their merits. Following south through the tier of counties along the western base of the Sierra Nevada, we find there is scarcely one, from Calaveras to San Bernardino, but advances some claim to be the repository of silver, and not in every instance without good reason. In most of the southern coast counties, too, we hear of explorations on foot, either for the discovery of new or the re-opening of ancient mines. At various points in the Coast Range, in Monterey, San Luis Obispo, Santa Barbara, and Los Angeles Counties, tunnels are being run and shafts put down in pursuit of silver ores, on the strength of favorable assays obtained from float rock and croppings. It is a historical fact that silver mines were wrought at Alisal, forty miles east of Monterey, in eighteen hundred and six and eighteen hundred and twelve, but discontinued about the latter period, the vein being lost. About a year ago work was resumed near this spot, and, as is supposed, upon the former lead.

Passing over the Sierra into the extensive but barren and isolated region of Owens River, we find mining enterprise actively engaged over a large scope of country, embracing what is known as the White Mountain, Inyo, Russ, Coso, Slate Range, Argus, and Telescope Districts. Here are a number of mills, some of which were started over a year ago, while others are just getting under way. Several of them are reported to have lately made very successful runs, cleaning up a large amount of amalgam, yielding, as a general thing, more gold than silver. Owing to the Indian troubles, operations in that section have been greatly interfered with during the past two years. These having been quieted, a more prosperous state of affairs may be looked for, immigration having already begun to flow in quite freely. On Owens River there is a considerable tract of good land; and here, too, wholesome water for domestic purposes, with enough to drive a moderate amount of machinery, can be had. In the Sierra, some twelve or fifteen miles west of the river, timber is abundant; but throughout nearly every other part of this region both wood, water, and grass are extremely scarce—obstacles that, with its remote and isolated position, will go far to counteract the attractions afforded by its great mineral wealth, and tend much to retard its development.

On both the California and Arizona sides of the Colorado River, silver lodes of manifest value are met with; but owing to the great scarcity of wood and water, and the general sterility of that entire country, the facilities for reducing the ore are very limited, such only as will justify transportation possessing for the present much value. In Utah Territory, silver bearing ledges, not unlike those found in the vicinity of Reese River and other portions of Washoe, are quite numerous, and will no

doubt soon be worked with equal or perhaps greater profit, the staple articles of subsistence being cheaper there than in the adjoining Territory. In the Boise country, and other parts of Idaho, samples of rich silver ore have been obtained, and many ledges taken up, for the development of which companies have been formed and other preliminary steps taken.

From the foregoing cursory inspection it will be seen that the argentiferous field of California and adjacent Territories is of immense extent, and that whatever losses may have heretofore been sustained in mining operations, some of them ruinous and vexatious enough, we are but on the threshhold of a business capable of almost infinite expansion, and which is worth some little personal sacrifice in this its first feeble stages and struggles for recognition as a legitimate pursuit. Let those who have lost money by mistaken investments remember that they are not the only sufferers, thousands of laborers having lost what to them is even more important—months and years of severe and unrequited toil. If individuals have been impoverished, the community at large has been enriched; and although silver mining, as a whole, may not yet have refunded the money spent on its behalf, it is easy to see that it will ultimately make square all accounts, having already infused additional vigor into every other calling, and added many per cent to the value of property throughout the whole Pacific coast. As a rough showing of what can be done where the business has obtained headway, the following is submitted:

There are now considerably over a hundred quartz mills in operation in the Territory of Nevada. These carry from five to forty stamps each, and have been erected at a cost ranging from ten thousand dollars to one hundred thousand dollars—three or four, at least, having exceeded the latter sum. The Gould & Curry mill, with its surrounding improvements, has already involved an expenditure of seven hundred and fifty thousand dollars, which it is believed will be increased to nearly one million dollars—even more, when finally completed. About three fourths of these mills are driven by steam, and the balance by water. Of the entire number in the Territory, seven eighths are in the vicinity of Virginia City, the furthest being not over fifteen and the most of them but a few miles distant. The most of them receive their supply of rock from the claims near that place and the Town of Gold Hill.

It is calculated among mill men that every stamper will crush a ton of rock in twenty-four hours. If we use the number of mills exceeding one hundred to offset those that are stopping for cleaning up and repairs, we will have at least one hundred mills in constant operation. These will carry, on an average, ten stamps each, making one thousand, with a capacity for crushing one thousand tons of ore daily. This ore will yield at the rate of fifty dollars per ton, giving a daily product of fifty thousand dollars for the Territory, or a total, allowing three hundred working days to the year, of fifteen millions of dollars per annum. Such is the miner and mill man's mode of reasoning and reckoning. Such, however, may not be strictly the facts when we come to square things by actual results; and though the mills may at this time be yielding more than the yearly average would indicate, certain it is, the bullion shipments, so far as we can get at them, give but little more than half that sum as the product of Nevada for the year last past. These shipments however, do not fully represent the gross product of the mines, as some, though not much, bullion makes its way out of the Territory in private hands or through other channels, of which they take no cognizance.

Small lots of choice ore are also frequently sent abroad for treatment, while immense quantities of the poorer classes accumulate about the mines, being reserved in the hope that they may some day, through cheapened labor and improved processes, be worked with profit. Many mills also omit to work their tailings very closely, saving them for a like purpose.

To illustrate how rapidly communities grow up and how vigorously business thrives under the stimulus of this species of mining, a brief glance at the history and condition of affairs in Washoe will suffice. In four years the population of that country, from less than two thousand, has increased to sixty thousand, the value of property having multipled in a much greater ratio. Estimating everything at a low figure, five millions of dollars has been expended in erecting quartz mills and reduction works; another five millions of dollars has been laid out in opening the mines, and three times as much in various other kinds of improvements. In wagon roads alone, leading into and through the Territory, five hundred thousand dollars have been spent—an investment that has paid from forty to eighty per cent per annum. The tolls collected on these roads the past year reached at least the sum of two hundred thousand dollars. The money paid on freights coming into the Territory amounted to fully three millions of dollars—some rating it much higher. About three thousand teams of various kinds are employed in this business, besides numerous pack trains. These facts, coupled with the prospective increase of business, should be all the argument necessary to demonstrate that the one great and pressing want of Washoe is a railroad connecting it with San Francisco. No where else is a railroad needed so much, and nowhere else would one pay so well.

The Reese River country, which one year ago contained not over fifty persons, all told, and could boast nothing nearer a town than some dozen wretched huts, has now five or six thousand inhabitants, with one good-sized city and several thrifty villages. Six months ago there was not a quartz mill in that region; now there are ten or twelve—counting those in course of erection or on the road in—six or seven being already in operation. With such facts before us, it is easy to divine what must be the future of a country whose main reliance and principal branch of industry is silver mining. To make this business, however, or rather that branch of it which consists in dealing in stocks, not only profitable but respectable, it must be divested of the wretched character—hardly better than that of public gambling—which has come to attach to it. This evil must, of course, soon cure itself—all that is necessary to its instant eradication being the abandonment of any attempt at operating in a stock not known to possess intrinsic value, and all meretricious efforts at inflating prices.

QUARTZ GOLD AND SILVER MINING.

This branch of business was extensively engaged in as much as ten years ago, in California. Nearly all the earlier efforts, though in most cases backed by large capital, were ruinous failures. So completely was the public dispirited with these trials that for many years the business was wholly neglected, except at Grass Valley and a few other points in the State. The obstacles to success having at length been in a measure overcome, quartz mining gradually revived, and for several years past has been carried on in a great many localities, and generally with profit. Some notice of it might properly have been taken in our remarks on silver mining, as at many of the places therein mentioned much of the rock

is worked merely by a gold-saving process, bringing it under the denomination of quartz mining. For example, the rock from some of the rich claims at Gold Hill is not treated for silver at all. So, too, the boulders of which there was so much talk, found in the Mogul District a year ago, and the equally rich lead of the Santa Eulalia Company, in the Alpine District opposite, are simply worked as auriferous quartz. The same may be said of most of the rock in Arizona, as also of that in the Owens River country, and other sections in California.

At the present time there is not a county in the mining region of the State but what has within its limits several, some of them a large number, of quartz mills in constant operation. Many of these are expensive and well appointed establishments, being driven by steam, and supplied with every improvement and appliance known in the present advanced stage of the business. In the wildest glens of the Sierra, all through the foothills, on nearly every mountain stream, is to be found some sort of a quartz-crushing establishment, ranging in capacity from the Mexican arrastra to the forty stamp mill. In Plumas, Shasta, Sierra, Yuba, Nevada, Placer, Tuolumne, and Mariposa, the business is now very largely and profitably carried on. The earnings of some of these mills are enormous, running from five thousand dollars to fifty thousand dollars a month. Five thousand dollars, and even six thousand dollars and eight thousand dollars at a single cleaning up, is no unusual thing. At Gold Hill, Nevada Territory, a single foot of ground often yields a clear profit of one thousand dollars per month, and occasionally much more; California not being without similar examples. Without particularizing further, then, quartz mining as conducted at present may justly be classed among the most extensive and lucrative branches of business now carried on in Califotnia, and one that has, perhaps, as bright a future before it as any other.

COPPER.

If the gold and silver mining interest on this coast seems to open a field of illimitable wealth, copper points to one equally rich, and to the poor man, perhaps even more inviting, since a lode of this ore once struck, if only of medium value, can by judicious management be made to defray all the cost of its full development. The moment a ton of ore is on the surface, it can, if it contain only as much as ten or fifteen per cent of metal, and is tolerably accessible, be sold for cash; or capitalists will advance upon it an amount approximating its value at the smelting works, deducting freight, insurance, and use of money, leaving to the seller whatever more the ore, when smelted, will command in the market. Every variety of this ore is to be found in California, that to be sought after as a source of profit being the sulphurets, as most likely to exist in quantities and yield a paying per cent.

It is only a little over two years since the attention of the mining public of this State was directed to the subject of copper, a ledge carrying, as was subsequently ascertained, a heavy body of this ore, having been found about that time in Calaveras County, at a point since designated Copperopolis.

The Union mine, of the latter place, has been shipping ore with regularity during the past year, averaging about three hundred tons monthly, assaying twenty-two per cent.

The Napoleon has been shipping, since July last Numbers One and Two ore, averaging about one hundred tons per month. In addition to this,

the mine has produced about one thousand tons of low grade ore, assaying from eight to twelve per cent.

The Cosumnes, of Amador County, have sent forward one hundred tons during the past year.

The Newton mine has shipped, since June last, about nine hundred tons.

The Lancha Plana has sent to this city one hundred and fifty tons during the past year.

The Alta mine, of Del Norte County, have shipped to Europe three hundred and fifty tons, assaying about twenty per cent.

COAL.

Second to no other production in its bearing on the permanent prosperity of the State is the article of coal. As an agent of promoting our mechanical and manufacturing interests, and rendering our other mineral resources available, it has the strongest possible claims upon our attention. In connection with the vast beds of superior iron ore already found upon the coast of the North Pacific, it becomes doubly important, since, with the facilities it will afford for its manufacture, we may soon hope to supply ourselves with this very costly but indispensable article. The economical generation of steam, whether for the purposes of navigation or the propulsion of machinery, will probably go further than any other one thing in deciding the question of national supremacy. In comparison with a permanent supply of cheap fuel, gold and silver are commodities of altogether secondary importance. Better far that our mines of the precious metals utterly fail, than that it should be determined we had only a limited supply or an inferior character of coal on this side the continent. That such a lamentable result, however, is not likely to happen we have good reason to hope. The only points in our territory, at which coal is now being obtained in marketable quantities, are Bellingham Bay and Mount Diablo. From both these localities a very fair article is being procured, and though inferior to the imported, it answers very well for a domestic fuel and the purposes of making steam. At a great number of places, both in California and the neighboring Territories, signs, and, in a few instances, small veins of coal have been found. At Corral Hollow, Alameda County, there is quite a heavy deposit, which, when greater depth is attained, it is thought will yield a good article of fuel. The following are some of the localities that have exhibited carboniferous signs sufficient to entitle them to notice. In the Coast Range, on Bear Creek, to work which a company has been incorporated in Marysville At San Bonita, Monterey County, where the coal is sufficiently pure to answer for the forge being used for sharpening the picks of the miners. At Mark West Creek, Sonoma County, where, from a shaft one hundred and twenty-six feet deep, an article suitable for blacksmiths' use, also used for generating steam and gas with success. Eight miles from Jacksonville, Oregon, a heavy deposit of coal has been discovered, but not tested sufficiently to settle its character. On Dry Creek, near Folsom, are good indications, to prospect which a company has been formed and work commenced. In the Slate Range, Tulare County, a seam of something very like coal crops out, four feet wide; it is of a soft nature, and burns freely. Near the Half Way House, on the road from Placerville to Washoe, a substance sufficiently carbonaceous to burn under the blow-pipe has been found; it is called coal, but is probably lignite. At the Whitman coal mines,

Nevada Territory, over fifty tons of coal, suitable for burning in grates and even driving steam mills, has been taken out. On the Humboldt River samples of good coal have been found, but the discovery has never yet been properly followed up. In Esmeralda a sort of petrified mineral pitch is met with, which is inflammable and emits a strong heat. With these and many similar examples, it may be safely concluded that we are not without our carboniferous fields, the contents of which will be so much needed for the development of our other forms of metallic wealth.

PRODUCTION OF COAL, ETC.

From Bellingham Bay, Washington Territory, about nine thousand five hundred tons of coal have been received during the past year, and from Nanaimo, Vancouver Island, about six thousand tons in the same period.

From the Mount Diablo mines shipments of coal have steadily increased during the past two years, and there has been for some time an active demand in this market for all they have produced at rates advancing from eight dollars to twelve and fifteen dollars per ton. The Pittsburg mine was opened in eighteen hundred and sixty-one, and during that year produced about seven hundred tons per month; during eighteen hundred and sixty-two, about one thousand tons per month, and for the year eighteen hundred and sixty-three, twelve hundred tons monthly. The company have been working chiefly the out crop so far, but are now tunnelling to cut all the veins, employing thirty hands. This is an incorporated company, with two hundred shares of five hundred dollars each, and could at present pay two per cent per month on the capital stock.

The Union mine commenced shipping coal October twenty-sixth, eighteen hundred and sixty-two, averaging eight hundred tons per month until November first, eighteen hundred and sixty-three. From November first to December first, eighteen hundred and sixty-three, six hundred tons were delivered; and from the latter period to January first, eighteen hundred and sixty-four, twelve hundred tons were sent to this city. In the spring it is thought that two thousand tons per month can be sent to market from this mine. The company employs forty hands, who are now working the first vein four feet wide; they have three other veins not yet prospected; one at a depth of ten feet is nearly three feet thick.

Two tunnels are now being run toward the first vein, three hundred feet each in length.

From the bottom or end of the incline, (two hundred and fifty feet from the surface,) drifts have been run on the vein both ways, from which the coal is taken out. Sixty thousand dollars have been expended on the mine thus far, most of which sum has, however, been derived from sales of coal. This company is not incorporated, and is composed chiefly of persons residing in this city.

The Manhattan mine was opened in eighteen hundred and sixty. During the year eighteen hundred and sixty-two, the average yield per month exceeded five hundred tons. For the year eighteen hundred and sixty-three, the mine had produced nine hundred tons monthly. Fifty thousand dollars have been expended thus far on bringing the mine to a paying condition. This sum has been taken out of the mine, being the proceeds of coal sold. A level tunnel, two thousand feet in length, has been run on the vein. Side drifts to cut other veins are in progress, at

a perpendicular depth of one thousand feet from the surface. This company is not incorporated.

The Black Diamond mine was opened in eighteen hundred and sixty-one, and sent to market that year six hundred tons per month. During eighteen hundred and sixty-two, one thousand two hundred tons per month were shipped, and for the past year the average yield will exceed one thousand six hundred tons. Seventy-five thousand dollars have thus far been spent in developing the mine, but only four thousand dollars have been required from the shareholders. This company is incorporated, with five thousand shares of one hundred dollars each, which are firmly held at about forty dollars. A level tunnel, nearly one mile in length, has been run on the vein. The mine is at present paying about sixty-two and one half per cent on market value of stock.

The Eureka mine, an incorporated company, of four thousand shares of twenty-five dollars each, has been shipping regularly since eighteen hundred and sixty-one, averaging during that year eight hundred tons per month, and for the year eighteen hundred and sixty-two nearly one thousand tons monthly. During the past year the average monthly yield will exceed one thousand two hundred and fifty tons. The mine is now in a flourishing condition, and pays handsomely.

Other mines in the Mount Diablo region are being prospected and opened, but are not yet shipping coal. The great drawback to the mines before mentioned is the lack of convenient and cheap access to water communication, some five miles distant. All the coal from these mines is now hauled to the landing at a heavy expense—two dollars to two dollars and fifty cents per ton. A railroad has been projected, but thus far nothing tangible has been accomplished. It is said that there are many difficulties to be overcome in its construction, involving a large outlay of money in excavating, tunnelling, etc. From the landing to this city, schooners and other small craft can ply without difficulty at all seasons of the year.

IRON MINING.

Of iron ores we have every variety, and in quantities wholly inexhaustible; and although no attempts have yet been made to render them available, the time will no doubt soon arrive when, with our facilities for its manufacture and immense consumption of iron, these repositories of the crude material will be drawn upon to meet in part a demand which, already large, must rapidly increase upon this coast for many years to come. Chemical examinations show these ores to be all that could be desired; and it would really seem as if we might produce pig iron at least, leaving the establishment of rolling mills for a later period. For castings we require a vast quantity, and that we could make this kind there is no question, even though our iron may not prove annealable. At many points in the State, and even in the vicinity of San Francisco, magnetic iron is very abundant. In the Washoe country, this and other forms of the ore is found in huge reefs, traceable often for miles. On the Willamette River, near Oregon City, a whole mountain of iron has lately been found, and which, on trial, proves as malleable and tough as the best Swedish. The ore yields seventy-five per cent of pure metal, and the country about being covered with heavy forests, the manufacture of iron could be carried on very cheaply. In Mono County the protoxide of iron, a rare and valuable ore, exists in large ledges. That we shall be able, when transportation comes to be cheapened by

means of railroads, to supply in good part this great commercial need, is quite certain.

MINING FOR PETROLEUM AND ASPHALTUM.

Petroleum and asphaltum both exist in California in quantities that impart to them decided value in the view of economists. The latter is found in immense beds on the sea shore in the vicinity of Santa Barbara, whence it is exported, mostly to this city, being used largely in the construction of sidewalks, roofing, and for which and similar purposes it is well adapted. A company has been formed for carrying on the business in all its branches, whose operations are said to be rapidly extending. In a climate where the heat is never great, like that of San Francisco, asphaltum answers admirably for sidewalks and roofing. At a high temperature this substance softens too much to serve well for these uses. An extensive deposit of asphaltum has lately been found eighteen miles west of Buena Vista Lake. It boils up from numerous springs, being warm and in a fluid state, and about the consistence of molasses when it comes to the surface. As it cools it hardens, taking the form of asphaltum—being in its liquid state, and limpid, called petroleum. It is usually, as it flows from the ground, dark and viscid, thence the popular name of tar springs. During the past summer an extensive spring of this kind was discovered in the neighborhood of Pyramid Lake, the bituminous substance being quite hot and thick as tar.

Petroleum springs, being what constitute the oil wells of Pennsylvania and other eastern localities, are met with at many points on this coast, though the only ones being at present systematically worked, so far as we know, is that at Santa Cruz and another near San Pablo, in Contra Costa County, about ten miles from this city. An association under the name of the Conway Petroleum Company has been incorporated for prosecuting the business at the latter point. Under the direction of their Superintendent, J. H. White, a man of much scientific knowledge and practical skill, they have commenced expensive operations, having bored a series of wells, one of which is already discharging a small quantity of superior oil. Another of these wells, having been sunk to a depth of four hundred and twenty-five feet, struck a reservoir of water which is now ejecting at the rate of fifteen thousand gallons a day, throwing it thirty-five feet above the surface. Iron pipes are being prepared, with a view to carrying this well still deeper, and the company feel confident of obtaining a workable supply of oil. Our knowledge of the best modes of refining these oils is limited, the art being yet in a crude state. There are those amongst us, however, who would seem to understand it, samples of both the illuminating and lubricating oils produced by the Superintendent of the Conway Company evincing that he has pretty well mastered its difficulties.

It is from this petroleum the kerosene and coal oils are distilled. From a report made by Commissioners appointed to institute tests, it also appears that it can be employed economically to generate steam, being a saving of many per cent over any other known fuel. A varnish has also been prepared from it by Captain White, which is believed to be unsurpassed as a material for coating the bottom of vessels, and also preserving wood from rot, and protecting piles from the ravâges of the borer. Meeting so many wants in daily life and the mechanic arts, this class of substances must soon come to occupy a very prominent place in the staple products of the country. The works alluded to at Santa Cruz

are said to be well under way, and the prospect of success at that point altogether encouraging. In Santa Clara County, also, oil springs have been found near the Los Gatos Creek, which are being worked by an incorporated company, and are said to promise well.

QUICKSILVER MINES.

This article would seem to be very generally diffused over our coast, if the claims advanced by prospectors are to be admitted. In every direction we hear of discoveries of cinnabar being made, many of them, no doubt, having little foundation in fact—the oxide of iron, or other worthless substance, often being mistaken for this metal. Of the discoveries that created such a sensation in Napa County two or three years ago, but little further has since been heard, and although many companies were formed at the time for working these reputed mines, and some retorts erected, we do not find that much of the metal has ever found its way into the market. The New Almaden mine is under successful headway, turning out a large quantity of quicksilver. The New Idria mine has produced nothing for the past two years, being tied up by legal process. The Enriquita and Guadalupe mines, near San José, are both at work with their usual results.

AGRICULTURAL COLLEGES.

In view of the fact that our next Legislature will be called upon to legislate for the establishment of an Agricultural College in this State, in compliance with the conditions of an Act of Congress donating to the State one hundred and fifty thousand acres of land for that purpose, and in order to bring the subject more fully up for consideration and discussion, we copy the following able paper from the Commissioners of Agriculture, as published in the bi-monthly report of the Agricultural Department at Washington, and bespeak for it the careful consideration the importance of the subject and the merits of the article deserve:

This Department has received various letters asking its views relative to the best system of instruction for the Agricultural Colleges to be established under the Act of Congress of July second, eighteen hundred and sixty-two, donating Public Lands to the several States and Territories, to provide Colleges for the benefit of agricultural and mechanic arts. As Congress had in view the establishment of at least one College in each of the States and Territories, and as the experience of the United States in such institutions has not been either extensive or successful, it is highly necessary that public sentiment should be awakened, that, by enlightened action, success may be obtained. This public sentiment cannot be acted on, in this matter, more speedily than through this Department, and hence it now complies with the request in these letters, not expecting to control this public sentiment, but simply to aid in its development, and to be the means of uniting its action.

But there are other reasons why the Department must ever be deeply interested in the successful establishment of these Colleges. Some of them are the following:

First—The Department needs much the aid it would derive from these Colleges. They will have experimental gardens and farms, skilful Professors to properly conduct experiments, to carefully note them, and to properly report them. Hence, when the Department imports new seeds and plants, it can, through their aid, at once determine their adaptability to this country, and the climate, soil, and cultivation, proper to each. The distribution of seeds, cuttings, etc., could then be made on a most economical basis, because they would be distributed only where they could be advantageously grown. Seeds, when thus tested, could be

grown by these institutions, and thus a large sum of money now sent abroad would be distributed at home.

Second—From these Colleges would be received reports of the experiments made, and these would be placed before the farming public through the reports of the Department, and thus, with the seeds and cuttings distributed, would be communicated the mode of cultivation adapted to each.

Third—A great object with this Department must be to systematize the agriculture of the United States; and how can this be so well done, over a country so extensive, and of such diversified latitudes and products, as by the aid of local institutions, under the direction of high intelligence, and aided by the special agencies which will be found in them?

Fourth—To render most practicable and useful such systematized farming, the aid of institutions having local influence will be essential, as instructors of leading farmers, and to obtain such State legislation as may, from time to time, become necessary to a more speedy advancement.

These reasons, without stating others, are sufficient to show how deep an interest this Department must ever take in the proper establishment of these industrial Colleges.

In considering such establishments, the first inquiry to be made is, *What course of instruction should be adopted by them?*

There are no settled opinions, in answer to this question, to be found in the United States. So far as they have been expressed in the course of study in our few Agricultural Schools, and in the writings of those who have sought to mould public opinion, the instruction proposed has contemplated a preparation for the farm only. The languages have generally been regarded as useless, and the course of mathematical studies has been too limited. In this, we think, lies the failure of our Agricultural Colleges. Such limitation may be adapted to European affairs, where the son seeks to continue in the father's occupation. But here the farmer's son is no more destined to agricultural pursuits than the son of a professional man. Here the merchant longs to be released from the distracting cares of commercial pursuits, and the opulent manufacturer from the dangers of changing markets. Both anxiously desire the rest and enjoyment found in the country life. And with them in this wish is the professional man and the politician. And it is a natural desire; it is a part of man's nature, as it was in conformity with it that God placed our first parents in the Garden of Eden; or, that the homes of illustrious Americans have become a part of their fame, as Mount Vernon, Monticello, Ashland, and Marshfield. And this desire would be a hundred fold strengthened if early education fitted all for an intelligent pursuit of agriculture, as well as other occupations of civilized life. A system of education, to be successful, must be in conformity to the tastes and pursuits of a people. The time is not yet come in the United States when the son will inherit the father's occupation. Nor is it desirable that it should ever be so. The eminent success of Americans in all the pursuits of life; the intellectual and physical energy they have displayed in them; the facility with which this intellect takes hold of the most diverse pursuits—all point to a condition so different, both mentally and socially, from the countries of Europe, that its Agricultural Schools furnish but an imperfect basis upon which to rear our own. We must mark out a path for ourselves.

Congress, in the Act referred to, seems to have been governed by this American condition of things. Its provisions are broad and liberal. It

recites that in the Colleges to be established "the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the Legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

It will be seen from this that these Colleges are not to be agricultural only. The education of the mechanic, manufacturer, merchant, and miner, is demanded, as well as of the tiller of the soil. *All* the industrial classes are to be fitted for an intelligent career in the several pursuits of life. Anything less broad would not have been equal justice to all. It requires, too, military instruction—that the citizen may be qualified for duties the discharge of which is now demanded of so many; and it does not exclude "other scientific and classical studies."

The American youth have a broad career before them. Neither the farm, nor the workshop, nor a subdivided labor in either, is to be the bound of their emulation or labor. The son of the farmer must be permitted to obey the promptings within him, and, like Mr. Webster, to hang the scythe on the tree, or, like Mr. Clay, to ride to the highest political stations, as well as on the horse's back to mill. Like Washington, he should be fitted for the chain and the compass, or the camp, or political rule, or the management of a landed estate.

It may be answered in the senseless aphorism that a "Jack of all trades is master of none." The career of Henry Ward Beecher furnishes a reply. He lately told us, when in England, that he was bell-ringer, too, in his first church. When at Indianapolis he published an agricultural paper; and, during the past summer, the Journal of that city, alluding to the admiration of strangers for the beauty of its gardens and yards, ornamented with flowers, and evergreens, and shrubs, gave all the credit to Mr. Beecher's teachings when there. He left in the west "the Beecher rhubarb"—a seedling variety, originated by him, not inferior to any other—and he reformed the butter market of that city. And he did these things while he was the first of its preachers. His recent political speeches in England exhibit his power in another field.

Another case, showing the superiority of a general education of the faculties of the mind over the disciplining of a few only, is seen in an eminent American manufacturer and inventor. In exhibiting in England one of his inventions he had the work mostly done there, but made slow progress in completing it. Writing home, he said that in English shops the workmen are trained to such subdivisions of labor that one of them can do the work of only one part of an engine; "that one part must be done before another workman can do his part; that few of them can superintend the entire work of an engine; whilst in his own manufactory here most of his workmen were competent to do this." And to this subdivision he attributes the want of inventive talent in England.

Apart, then, from pre-eminent ability, we see that, both in education and labor, a development of mental power is promoted by a general discipline of all the faculties of the mind, and that instruction dwarfed to a particular pursuit results in a dwarfed mind itself; that the powers of the mind, like those of the body, achieve most when their fully developed strength is centred, for the time, on the accomplishment of a certain object. If our greatest minds have found this developed strength in liberal studies, lesser minds must be governed by the same law of

progress. Confine their faculties to a narrow routine of study, and whilst a few faculties may be partially strengthened, others remain undeveloped.

In the agriculture of England and of the continent, we see the influence of limited instruction. A ploughman continues to be but a ploughman, and a worker in the vineyard occupies the place filled by his grandfather's grandfather. Whatever of progress we find in England and Scotland, is to be attributed to a higher and broader development of mind. Turn to France, and in the following description of its agriculture in the south, we see the results of subdivided instruction. One of our most intelligent Consuls thus writes:

"I received the request from the Agricultural Department to furnish it statistics. I know not what to do. I, who have always so loved agricultural and horticultural pursuits, would certainly be expected to do much in this line. But when I look around, I find absolutely nothing in all France to interest our country in that line. So far is France behind us all in labor-saving machinery, in everything relating to agriculture, or the mechanic arts even, that I know it is the wrong place to seek light. Many things are unearthed at Pompeii and Herculaneum that are much in advance of anything in France. The ploughs are of the style of the ancient Egyptians'—a forked tree. Their carts and wagons of the farm are four times the size of our own—awkward and clumsy affairs you might worship and not break the second commandment, for they are the likeness of nothing on earth. The peasants drive in a single hog to market, as in Ireland, and everything else is in the same piddling, picayune style. Is this the style to be imitated by our own large minded, great souled, enlightened, freeborn Americans? Not by my aid or consent.

"This district, and the whole south of France from here to Nice, on the Italian border, is a land mostly of grapes; the eastern half of olives, also; a poor, miserable character of farming, which we should leave, I think, after looking over the whole ground, to the small minded small farmers of Europe. Or when we do go at grape raising, as we will largely in California, let us go at it in our own grand style, as we raise hogs, corn, wheat, etc., etc.; no piddling or scratching like this."

Here we have graphically described the difference between the enlarged American agricultural mind, and the dwarfed European agricultural mind. Our agriculture presented a scope that demanded thought; it was vast in itself, and by its own greatness raised up the farmers of our country to the higher standard we find in the foregoing contrast. But as population becomes more dense, there will be a tendency to European division of labor and its narrow views. This must be counteracted by liberal education. Grand as have been the achievements of American agriculture, it has been aided by a natural richness of the soil, which must be replaced and sustained by the riches of science.

But the American farmer and artisan have not yet achieved their greatest elevation, either in their occupations or in their positions as American citizens. Look into the army and at the civil offices. A stranger to our institutions might readily suppose that the profession of law constituted a privileged class in this country, and that no one outside of its ranks could hold a civil or military official position. Is this just to the industrial classes? Or is it safe to the government? The mission of these classes is not one of toil merely, but of equal position

as citizens. The skilful artisan, the comprehensive farmer, the far seeing merchant, the enterprising manufacturer, should be competent, when occasion demands, to be an officer in the army, or a statesman at home, or a minister abroad.

Our Agricultural Colleges have heretofore failed because they aimed to educate for the pursuit of agriculture only. The sons of our farmers are not less ambitious of distinction than others, and an education that regards them as farmers only cannot meet their approbation. The purpose of an education is to teach men to observe and to think—these are alike essential to all pursuits, and in these operations of the mind all the faculties are called in requisition. A skilful and correct use of their power is the boon of instruction. Their general development is first to be accomplished, and subsequently this developed power is to be applied to particular pursuits. A course of instruction regarded merely as information is not less necessary to one pursuit than another, for a mere farmer, or mechanic, is not less to be discountenanced than a mere lawyer. General science and knowledge is as essential and is as becoming to the one as the other. All pursuits, then, may have a common course of instruction.

From these general remarks, rendered necessary by prevailing erroneous opinions respecting the instruction suitable to the industrial classes, we return to the question asked, that it may now be answered specifically— *What course of instruction should be adopted in our industrial Colleges?*

First—Languages.—Besides the considerations just advanced, a knowledge of the English language, to express his thoughts, either in writing or speaking clearly, forcibly, and elegantly, is as important to one engaged in an industrial pursuit as in a professional. In early years, as twelve to sixteen, a youth cannot make more progress in learning it than by the study of the Latin language. It is a language that has added much to our own. Its study familiarizes the pupil with English words and their meanings, and their use to express ideas both correctly and elegantly. The study of the Latin grammar instructs him in the English grammar. And the knowledge of Latin is absolutely essential, if he would better understand and more readily remember the numerous words derived from this language used in works on the natural sciences.

The German language is used so extensively in the business transactions of many parts of the United States, that opportunity to acquire it should be given in these Colleges. It need not, however, be made an essential part of the regular course of study.

Second—The Mathematics.—The study of mechanical laws is directly connected with the mechanical and manufacturing arts. So far as mathematics is essential to their understanding, to disciplining the mind, and a thorough knowledge of natural sciences, they should be made a part of the course of study.

Third—Of the other branches of study, we cannot do better than to adopt the following, transmitted to the Department by Richard Owen, a brother of Robert Dale Owen, and of the late David Dale Owen, a name familiar to every intelligent citizen on account of his eminent attainments in science, and his practical application of them in geological and mineralogical surveys. Mr. Richard Owen is now a Professor in the State University of Indiana, at Bloomington, and is not less thorough in his scientific acquirements. He has received a military education, also, and until recently commanded a division of the Indiana troops.

A course of study, although briefly laid down, by one who is as practical as learned, cannot but receive the careful consideration of all.

Mr. Owen, in his letter, says :

"I hasten now to furnish, as you request, an outline of the plan of study which I think might be advantageously adopted, throwing out other hints which can receive consideration, provided the means are sufficient and the public mind prepared.

"Finding the great advantage of addressing all instruction, as far as practicable, to the eye, (in addition to that given through the medium of the ear,) I would recommend a museum, (besides the lecture-room, each having its own appropriate specimens and diagrams,) to contain—

"*First*—All the most important minerals, arranged according to Dana's text book.

"*Second*—The necessary rocks and fossils, to illustrate pretty thoroughly each geological period.

"*Third*—A suite of plants, arranged according to the natural orders.

"*Fourth*—Specimens of all the most important seed vessels (chiefly fruits) and seeds, (grains, grapes, etc.)

"*Fifth*—A zoological department, exhibiting the most important animals, from the sponge and polyp, up through the star fishes and sea eggs, worms, crustaceans, and insects, (particularly those injurious to agriculture,) mollusks, fishes, reptiles, birds, and mammals, (including the skeletons of all the domestic animals,) to end with man.

"*Sixth*—Numerous charts, exhibiting streams of time, chemical tables, geological sections, maps of physical geography, giving meteorology, distribution of plants, animals, rain, etc.

"*Seventh*—A good set of philosophical instruments to illustrate the department of natural philosophy and land surveying, such as the air-pump, electrical machine, mechanical powers, rain-gauge, barometers, thermometers, hygrometers, hydrometers, microscopes, sextant with horizon, etc.

"*Eighth*—Models of machinery, as grist mills, saw mills, paper mills, cotton machinery, and the like. Also, improved agricultural implements of every description, and models of barns, bridges, grain houses, etc.

["N. B.—This museum should be open to the agricultural and normal institutions.]

"INSTRUCTION.

"*First*—For *physical* development, gymnastics, agricultural operations in suitable weather, at least for a part of the classes, (the others taking the succeeding day,) as ploughing, digging, mowing, sowing, etc.

"*Second*—For *moral* culture, religious instruction, moral philosophy, music, (especially vocal in parts,) social gatherings or re-unions, at least for some classes, each week, when they should meet the Professors and their families, having some object to bring them together, such as microscopic examinations, or the magic lantern, music, or portfolios of engravings, etc., to examine.

"*Third*—For *mental* improvement, supposing the elementary branches mastered; then drawing, land surveying, geography, bookkeeping, human anatomy, physiology and hygiene, comparative anatomy and physiology, vegetable physiology, chemistry, mineralogy and geology, botany and zoology, lectures on gardening, pruning, fruit raising, wine making, etc.; agricultural chemistry, embracing lectures on manures, improving worn out lands, drainage, etc.; lectures on stock raising and farriery.

"THE NORMAL SCHOOL.

"In this a great object should be, not so much to convey any particular information of subjects to be taught, as to discipline the would-be Teachers in the best method of imparting instruction in any branch or department.

"Instruction how to convey information to the youthful mind might be given on the following points:

"*First*—Lessons on things (objects surrounding us) of everyday occurrence.

"*Second*—Petalozzi's system of arithmetic, (mental.)

"*Third*—Writing on black-board, before using either slate or paper, to give freedom to the hand.

"*Fourth*—The elements of drawing, and practice in estimating distances, areas, etc.

"*Fifth*—Proper mode of teaching vocal music with metronome, tuning forks, etc.

"(These last three comprise improvement of the hand, eye, and ear—consequently the development of three senses; the taste and sense of smell do not require much cultivation.)

"*Sixth*—Making each would-be Teacher lecture alternately on some of the subjects under discussion, so as to practice the imparting of instruction, the Professor criticising, if necessary, his style, mode of handling the subject, etc.

"N. B.—If female Teachers are to be received and instructed, there should be a Model Kitchen for the instruction of young ladies in the proper mode of preparing wholesome food, such as household bread, and of *knowing*, not guessing, when things are sufficiently cooked; also, how to cook without the wasteful and unwholesome use of so much lard, and the advantages of boiling, instead of frying constantly in grease, etc.

"MODEL FARM.

"Connected with the Agricultural College there should, of course, be a Model Farm, and the best of stock, implements, etc.; also a Model Garden and Green-house. Connected with the Normal institution there ought to be a Model School-house and appurtenances, and, as above suggested, a Model Kitchen.

"MILITARY TRAINING.

"Perhaps by carrying out the West Point system of training, as far as consistent with study, work, etc., the necessity of a gymnasium might not be so great as in ordinary Schools and Colleges, where it ought undoubtedly always to be introduced under proper instruction.

"The above may serve to convey to some extent the plan which had been in my head for some time, but which had never assumed quite a definite form for want of knowing the exact circumstances under which such a plan could be worked out, and many details would of course depend upon that. For instance: Congress may, in the grant, perhaps prescribe a certain course; the State, in accepting, may prescribe. The community, in sending, may demand certain things, but the above may, perhaps, at least serve for a basis on which any one knowing the circumstances can work out the superstructure."

This admirable course of study, thus briefly sketched by Professor Owen, needs no comment; it sufficiently recommends itself. But it demands what few of our collegiate institutions have—that museum, apparatus, etc., which aid so greatly in the acquisition of knowledge by presenting, through the senses, clear ideas to the mind.

Why our institutions are deficient in these is obvious enough when we look at their too great number. The educational means of the community have been expended in building edifices, to the great detriment of thorough instruction by the help of those agencies referred to by Mr. Owen. Each State has its dozen of Colleges, and the apparatus, museum, library, etc., of all would be insufficient for one. *Are these industrial Colleges to be virtually destroyed by a like waste of means?*

What are these means? The Act of Congress gives to each State a quantity of land equal to thirty thousand acres for each Senator and Representative in Congress. A State that has unsold lands within its own borders may locate this grant; but those that have not are to receive land scrip, which cannot be located by the State, but only by the assignees of the State, at one dollar and twenty-five cents per acre. When we reflect that the homestead law gives away the Public Lands to actual settlers, and that no large bodies of good public farming lands remain for entry, it is pretty clear that the fund from the grant to the older States will be slowly realized, and then only at a great sacrifice. The law ought to be so amended as to allow immediate location by all of the States. *Must the industrial classes wait for this slow realization of the fund before Colleges so important to them can be established? And must they be limited to an inadequate course of instruction, by reason of insufficiency of the fund?* No! Kansas has so answered, and its admirable precedent should be followed by all other States like situated. No! Connecticut replies by bestowing its grant of lands upon Yale College. The one answers for the West, the other for the East.

The new States of the West and Southwest have had donations granted them by Congress for the establishment of Universities or Seminaries of learning. Among these is Kansas, and wisely determining to consolidate and not dissipate its College funds, it has consolidated the grant for both, merging the first one into the second, thus saving a useless expense in building two edifices when one is all-sufficient, in having two sets of Professors when only one is required, and by this economy securing a museum, apparatus, library, etc., so necessary for the proper instruction of all occupations, whether professional or industrial.

Under like grants, we have the following Universities: Ohio, at Athens; Indiana, at Bloomington; Illinois, at Springfield; Missouri, at Columbia; Wisconsin, at Madison; Iowa, at Iowa City; Michigan, at Ann Arbor. Since these Universities were established many others have been, in these and other States, mostly by religious denominations, in which is usually found such course of instruction as is adapted to professional pursuits, but not to the industrial, for want of the museum, apparatus, library, model farm, etc., mentioned by Mr. Owen. Why retain these State Universities as competitors of these private Colleges? Why not render them efficient, economical, more truly State institutions, by consolidating the grants, and thus creating a College competent to the thorough education of all occupations? The sound policy of such

union is the more obvious when it is remembered that the last Act does not allow any of the fund created by it to be used in buildings. The former grants have provided these, and a skeleton library and apparatus, with a fund competent only to sustain a faculty inadequate to such instruction as the wants of the age and of our condition demand. But all these would constitute a basis on which, as the funds from the recent grant were realized, Colleges adapted to these wants could be built up.

These views are now placed before the public in compliance with the requests that have been made, and with the hope that they will lead others to express theirs.

ISAAC NEWTON,
Commissioner.

COMPARATIVE CLIMATE AND GRAIN FARMING OF CALIFORNIA.

We invite the reader's attention to the following rain tables for California, England, and the Atlantic Slope, and ask from him a careful consideration of the comparisons and deductions succeeding them.

As a matter of interesting comparison to agriculturists, we append also a table of rain at Chiswick, near London, England, for the same years shown in the two tables which precede it, the only difference being that in the table for Chiswick the record commences with January, eighteen hundred and fifty, and ends with December, eighteen hundred and sixty-three, while in the two preceding tables it commences with September, eighteen hundred and fifty, and ends with May, eighteen hundred and sixty-four, or practically with August, eighteen hundred and sixty-four, as there is commonly no rain from June to September.

TABLE

Showing the Amount of Rain at Sacramento, in inches and tenths, of each month and each year for fourteen years; also, the total amount for each corresponding month, the whole amount of rain during that time, the mean amount for each month, and the mean yearly amount, from 1850 *to* 1864.

COMPILED FROM OBSERVATIONS BY DOCTOR T. M. LOGAN.

MONTHS.	'50–'51	'51–'52	'52–'53	'53–'54	'54–'55	'55–'56	'56–'57	'57–'58	'58–'59	'59–'60	'60–'61	'61–'62	'62–'63	'63–'64	Totals for months.	Mean for months.
September	0.000	1.000	0.000	0.003	Sp'kle.	Sp'kle.	Sp'kle.	0.000	Sp'kle.	0.025	0.063	0.000	0.009	0.003	1.003	0.079
October	0.000	0.180	0.000	0.005	1.010	0.000	0.195	0.655	3.010	0.000	0.914	0.000	0.259	0.000	6.228	0.445
November	Sp'kle.	2,140	6,000	1.500	0.650	0.750	0.651	2.406	0.147	6.485	0.181	2.170	1.489	1.490	26.058	1.861
December	Sp'kle.	7.070	13.410	1.540	1.150	2.000	2.396	2.632	4.339	1.834	4.282	8.637	0.786	1.815	51.891	3.707
January	0.650	0.580	3.000	3.250	2.670	4.919	1.375	2.444	0.964	2.310	2.668	15.036	1.733	1.077	42.676	3.048
February	0.350	0.120	2.000	8.500	3.460	0.692	4.801	2.461	3.906	0.931	2.920	4.260	2.751	1.086	38.244	2.732
March	1.888	6.400	7.000	3.250	4.200	1.403	0.675	2.878	1.637	5.110	3.320	2.800	2.360	3.303	44.224	3.159
April	1.140	0.190	3.500	1.500	4.320	2.132	Sp'kle.	1.214	0.981	2.874	0.475	0.821	1.693	1.080	21.920	1.566
May	0.690	0.300	1.450	0.210	1.150	1.841	Sp'kle.	0.203	1.037	2.491	0.590	1.808	0.355	0.742	12.867	0.919
June	0.000	0.000	0.001	0.310	0.010	0.033	0.350	0.098	0.000	0.017	0.135	0.011	0.000	.....	0.965	0.069
July	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.012	0.000	0.030	0.549	0.000	Sp'kle.	.....	0.592	0.042
August	0.000	0.000	0.000	Sp'kle.	0.000	0.000	Sp'kle.	Sp'kle.	0.000	0.000	0.000	0.006	0.003	.....	0.009	0.001
Yearly totals	4.730	17.980	36.362	20.068	18.620	13.770	10.443	15.003	16.021	22.107	16.097	35.549	11.438	8.596	246.777	17.628

Monthly Maximum—In fourteen years, January, eighteen hundred and sixty-two, fifteen inches and thirty-six one-thousandths.

Monthly Minimum.—During the fourteen years under consideration there has been forty-two months in which there has not been rain enough fallen at any one time to be measured. These months are distributed as follows:

In September	8
In October	6
In November	1
In December	1
In April	1
In May	1
In June	4
In July	9
In August	11

Yearly maximum—'52–'53	36.362
Yearly minimum—'50–'51	4.730
Maximum for fourteen corresponding months—December	51.891
Greatest monthly average, or mean, for same time—December	3.703
Least monthly average, or mean, for same time—August	0.001
Minimum for fourteen corresponding months—August	0.009
Whole amount of rain in fourteen years	246.777
Average quantity per annum	17.628

A CORRESPONDING TABLE FOR SAN FRANCISCO.

Besides a general interest, an opportunity for comparing the Rain Records at the Coast and in the Interior, is hereby afforded.

COMPILED FROM OBSERVATIONS BY DOCTOR HENRY GIBBONS.

MONTHS.	'50–'51	'51–'52	'52–'53	'53–'54	'54–'55	'55–'56	'56–'57	'57–'58	'58–'59	'59–'60	'60–'61	'61–'62	'62–'63	'63–'64	Totals for months.	Mean for months.
September	0.00	1.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.02	0.00	0.00	0.15	1.05	0.08
October	0.00	0.18	0.80	0.10	2.12	0.00	0.50	0.93	3.38	0.00	0.96	0.00	0.00	0.00	8.97	0.64
November	1.25	2.14	5.31	1.43	0.40	1.15	2.90	3.01	0.48	5.43	0.22	3.78	0.14	2.50	30.14	2.15
December	1.15	7.07	11.90	2.05	0.38	5.45	4.00	4.14	4.77	1.51	4.79	6.10	2.73	1.73	57.77	4.13
January	0.65	0.58	4.11	4.27	4.52	8.44	2.07	4.36	1.00	1.13	1.24	18.14	3.29	1.31	55.22	3.94
February	0.35	0.12	1.16	8.41	4.64	0.43	8.66	1.32	5.22	1.36	2.83	6.11	3.26	0.00	43.87	3.13
March	1.88	6.40	4.81	3.17	4.31	1.64	1.50	3.94	2.51	3.06	3.40	1.66	2.42	1.39	42.15	3.01
April	1.14	0.19	5.05	3.31	5.59	3.14	0.00	1.14	0.33	1.72	0.26	1.11	2.92	0.93	26.83	1.92
May	0.69	0.30	0.32	0.02	2.14	0.88	0.04	0.11	2.03	2.56	0.66	0.91	0.41	0.48	11.65	0.83
June	0.00	0.00	0.00	0.04	0.00	0.00	0.14	0.10	0.00	0.00	0.16	0.23	0.00	.....	0.67	0.05
July	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.00	0.00	0.00	.....	0.33	0.02
August	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00	0.02	0.00	.....	0.08	0.01
Yearly totals	7.13	17.98	33.46	22.80	24.10	21.13	19.95	19.08	19.72	17.10	14.54	38.06	15.17	8.49	278.73	19.91

Monthly Maximum—In fourteen years, January, eighteen hundred and sixty-two, eighteen inches and fourteen one-hundredths; over three inches more than in Sacramento.

Monthly Minimum.—There has been forty-eight months without rain at any one time sufficient to be measured, distributed as follows:

In September	10
In October	6
In February	1
In April	1
In June	8
In July	12
In August	10

Yearly maximum—'61–'62	38.06
Yearly minimum—'50–'51	7.13
Maximum for fourteen corresponding months—December	57.77
Greatest monthly average, or mean, for same time—December	4.13
Minimum for fourteen corresponding months—August	0.08
Least monthly average, or mean, for same time	0.01
Whole amount of rain in fourteen years	278.73
[A greater quantity by thirty-one inches and ninety-six one-hundredths than fell at Sacramento during the same period—nearly double the yearly average (seventeen inches and sixty-two one-hundredths) at Sacramento; establishing a theory, if it may be so called, that it rains about the same in fourteen years in San Francisco that it does in sixteen years in Sacramento.]	
Yearly average	19.91

TABLE

Of Rains which fell at Chiswick, near London, England, from 1850 *to* 1864.

MONTHS.	1850.	1851.	1852.	1853.	1854.	1855.	1856.	1857.	1858.	1859.	1860.	1861.	1862.	1863.	Totals for months.	Mean for months.
January	1.43	3.07	2.72	2.14	1.92	0.10	1.76	2.09	0.41	0.61	2.18	0.82	1.53	2.19	22.97	1.64
February	0.95	0.90	1.06	0.59	0.78	1.35	0.62	0.31	1.48	1.31	1.20	1.41	0.38	0.26	12.60	0.90
March	0.13	3.57	0.25	1.48	0.42	1.75	0.97	0.73	0.88	0.77	1.63	1.89	3.74	0.68	18.89	1.35
April	1.79	1.65	0.52	2.58	0.30	0.26	1.97	1.77	2.13	2.01	0.95	1.44	2.29	0.54	20.20	1.44
May	1.84	0.74	1.74	1.60	4.03	1.94	4.38	0.87	2.05	1.80	3.04	1.31	3.54	1.46	30.32	2.17
June	1.40	1.33	4.69	2.54	1.53	1.48	0.88	1.91	0.78	3.10	5.15	2.35	2.33	4.46	33.93	2.42
July	2.68	3.90	2.28	4.17	2.40	6.30	1.43	1.22	2.55	2.18	2.72	1.90	2.09	0.80	36.62	2.62
August	0.97	2.03	3.71	1.87	1.77	1.45	3.50	2.80	1.46	2.49	4.16	0.50	2.40	1.96	31.06	2.22
September	2.36	0.42	3.54	2.41	0.58	1.15	1.99	3.52	1.05	4.05	2.82	1.78	2.74	3.47	31.88	2.28
October	1.55	2.01	3.87	3.78	2.61	6.15	2.40	4.01	1.36	2.55	1.60	1.04	3.00	1.56	37.49	2.82
November	2.03	0.55	6.20	0.91	1.31	1.34	0.94	1.53	0.10	2.72	2.60	4.10	1.01	1.68	27.02	1.93
December	1.15	0.62	1.97	0.30	1.27	1.11	1.88	0.30	1.53	1.95	2.03	0.94	1.49	1.26	17.80	1.27
Annual amount	18.28	20.79	32.55	24,37	18.92	24.38	22.72	21.06	15.78	25.54	30.08	19.48	26.54	20.32	320.78	23.06

Monthly maximum in fourteen years—July, 1855	6.30
Monthly minimum, January, 1855, November, 1858	0.10
Yearly maximum in fourteen years	32.55
Yearly minimum in fourteen years	15.78
Maximum for fourteen corresponding months—October	37.49
Greatest monthly average for same time—October	2.82
Minimum for fourteen corresponding months—February	12.60
Least monthly average for same time—February	0.90
Whole amount of rain in fourteen years	320.78
Average quantity per annum	23.06

It will be observed that the average quantity, as shown above, at London, per annum, is greater, by over five inches, than at Sacramento, and by over three inches, than at San Francisco, and that while the rain on our coast nearly all falls during the winter and spring months, in England, though very evenly distributed throughout the whole year, yet the largest portion falls during the summer and fall months.

In the absence of any tables similar to the foregoing for any places in the Atlantic States, we append the following table, compiled from the Army Register, showing the average annual rain at the several places named, for thirty-three years, so arranged as to show the average of the several seasons—spring, summer, autumn, and winter—as this will answer the general purpose we have in view:

Localities.	Spring.	Summer.	Autumn.	Winter.	Total for Years.
Eastport, Maine	8.88	10.05	9.85	10.61	39.39
New York	11.55	11.33	10.30	9.63	42.23
Baltimore	11.13	11.04	10.53	9.31	42.00
Washington	10.45	10.53	10.15	10.07	41.20
New Orleans	11.29	17.28	9 62	12.71	50.90
Baton Rouge	15.08	19.14	12.48	15.40	62.10
Buffalo	8.50	9.23	13.54	7.53	34.96
St. Louis	12.86	14.09	8.71	6.29	41.95
Detroit	8.51	9.29	7.41	4.86	30.07

When we reflect that the agricultural operations of any country depend more for their success upon the proper adaptation of those operations to the seasons, and particularly to the annual rains, than to any other one circumstance—and in this State we may almost say to all other circumstances combined—a careful study of the above tables by every farmer and natural economist becomes particularly interesting and instructive.

Take, first, the climate of England, governed, or made, if you please, by the influence of the Gulf Stream. It has no extremes of heat and cold, no seasons of alternate drought and excessive wet. As seen by the tables, they have about one eighth more rain there than we do here,

and it is very evenly distributed throughout every month in the year, not one month having occurred during the last fourteen years in which there has not been more or less rain; and the greatest amount of rain which has fallen in any one month (July, eighteen hundred and fifty-five) during that time being six and three tenths inches; while on our coast, at San Francisco, in the same time, there has been forty-eight months, or two sevenths of each year, on an average, in which there has been no rain at all; and our most rainy month, January, eighteen hundred and sixty-two, shows eighteen and fourteen one-hundredths inches, or nearly three times the greatest amount shown in England. And what is peculiarly striking and suggestive in this comparison is the fact that our dryest months, namely June, July, August, September, and October, are in England the wettest. In addition to the above, it may be remarked, that during the dryest and pleasantest seasons in England the atmosphere is loaded with moisture, and the sun's rays are much of the time obstructed by clouds; while in California, during the summer and autumn months, the atmosphere contains but very little moisture, and the soil is subjected to the unobstructed rays of a burning sun.

Under such a state of facts, is it not plain that the husbandman of California must be careful how he draws his information from, or adopts as a rule of action, "English agriculture," particularly as to the preparation of the soil and the time and manner of planting the crops?

Now, let us look for a moment at the rain tables and seasons of the Atlantic States, as compared with our own. The average yearly amount of rain, in all parts of the Atlantic slope, it will be observed by reference to the tables, is much greater than in our own State or in England—the average at Sacramento being seventeen and sixty-two one-hundredths inches; at San Francisco, nineteen and ninety-one one-hun-hundredths; at Ipswich, near London, twenty-three and six one-hundredths; while the lowest average shown in the above table for the Atlantic States is thirty and seven one-hundredths, at Detroit. And the greatest is sixty-two and ten one-hundredths at Baton Rouge.

The rain in the Atlantic slope, like that in England, is comparatively evenly distributed through the year; but the greatest amount falls during the spring and summer months, and the least during the autumn and winter. There is one fact, however, which the above table for the Atlantic States fails to show—the average of separate months not being stated: that, although more rain falls in the year, or in any three corresponding consecutive months, yet drougths are more severe and of more frequent occurrence than in England, the rains being heavier and not so evenly distributed. And, again, the atmosphere of the summer and autumn, though very moist as compared with that of California during the same period, is still much dryer than that of England, not being affected as that of England is by the ever present condensation of moisture from the heated atmosphere which accompanies the Gulf Stream and spreads over the western coast of Northern Europe.

It may also be mentioned that the Atlantic slope is subject to extremes of heat and cold, to which we of the Pacific, and particularly of California, are strangers. How changed, then, to the agriculturist of Europe or the Atlantic States are all things in California! The seasons entirely unlike; the rains, as to *time* and *quantity*, entirely different; the climate, as a whole, a complete reverse of all he has experienced in either country. Is it strange, then, that the universal verdict of the emigrants from Europe or the Atlantic States, when they first arrived in California in search for gold, was that the country was good for nothing aside from

the mineral it contained—that it was worthless for agricultural purposes? Or, is it less strange that we have yet generally failed to adopt that system of cultivation which is best calculated to insure success.

We were, agriculturally, like a ship at sea, without compass or chart, and with no land marks to guide our course. A few experiments, however, soon taught us that California was not the desert waste she had at first been taken to be. A few carelessly cultivated fields, sown by chance in favorable seasons, produced astonishing crops of grain. The news of these facts spread throughout the mining regions, and miners, who had left the plough at home, and to whom agricultural pursuits, in memory at least, were more congenial than delving in the bowels of the earth, with an uncertain prospect of securing, in a short time, a sufficiency of the precious metals, and partly to escape the rigors of a rainy season in the mountains without house or shelter, hastened to the valleys, located *ranches*, as they were called, after the old Spanish rancheros, or *places* where the former inhabitants of the country *stayed* while sojourning and watching their wandering herds. Having thus located, they immediately set to work to break up—or rather scratch up—the virgin soil, preparatory to putting in a crop. Entertaining no thought of becoming permanent residents in the State, and with no idea of ever being able to convert their ranches into valuable farms, these pioneer croppers gave but little heed to the time of putting in the seed, whether in December or March, so that the ground was wet enough to plough; nor to the manner of cultivation, so that the seed was hid from view, and the job done before the dry season set in. This being accomplished, and there being no desire to make improvements on the ranch, which might be abandoned as soon as the crop was off, a season of leisure and consequent idleness followed. Reaping time came, and the season having proved favorable, with it came a bountiful crop and a liberal compensation for the labor performed and the means expended. Encouraged by such *chance* success, the grain growers of California have been repeating the above described routine of cropping, with an additional season of leisure and idleness between marketing one crop and sowing the next. This cropping has generally been done on the same land, without any rest or recuperation, year after year, for the last twelve years, sometimes successful and sometimes unsuccessful, as the seasons have been favorable or unfavorable—that is, as the rain fall has been above an average and continued late in the spring, or until after the sowing was done, or below an average, and fell mostly in the forepart of winter, or before the grain was in the ground.

And such, though it gives us pain to say it, is to a great extent the method of grain farming at the present time, if indeed the term *method* may be applied to a practice in which there is no *system* or *reason*.

Is it any wonder, then, that the grain farmers of California are becoming discouraged—that they are beginning to regard their occupation as uncertain and precarious—or, in that expressive California phrase, as "played out?" Such a method of farming is "played out," and should have been long since.

But now, while a dry season and a failure of crops to an extent heretofore unknown in the history of the State is affecting our pockets, and putting many of us to our wits' ends for the means to meet our engagements to our fellow men, and our obligations to our Government, in this time of her sorest need, let us pause for a moment and review the situation. Let us appeal to reason, to nature, and to facts, and determine whether we cannot reform the system of grain farming in California, to

such an extent, at least, as to render the business more certain and remunerative, if not more inviting and profitable than elsewhere.

What, then, is the reason in the premises? Our soils, as admitted by all, are not excelled for richness and durability, and for the peculiar adaptation by composition to the growth of grain. As proof of this, we have only to refer to the constant and almost universal good crops on the same land, year after year, even with poor and unnatural cultivation, whenever favored with a sufficiency of moisture. This question of moisture is the great question to the agriculturist in this country.

Since we have a small amount of rain, comparatively, and that confined almost exclusively to one half of the year, it is evident that, to secure good crops, the seed must be sown at such time and the ground must be prepared in such manner as to secure the full benefit of such rains. Time, then, is the first consideration. Our rainy seasons commence in September, and during September, October, and November, with scarcely an exception in the last fourteen years, (as will be seen by reference to the foregoing rain tables,) the ground has received a sufficiency of moisture to germinate the seed and bring forward the grain. Then, too, the ground is warm, and the weather is as favorable for the rapid growth of both top and roots of the young grain as in any of the spring months.

Then *reason* would teach us that the seed should be in the ground by the first of December at least, if not by the first of November. "But," says one of our farmers, "by the present system, although the ground has, as a general thing, been wet enough to start and bring forward the grain in November, yet there has been but two seasons in the last fourteen (eighteen hundred and fifty-one and eighteen hundred and fifty-nine) in which there has been sufficient rain before the first of December to enable the farmer to break up new ground, or stubble, preparatory to sowing." This we admit, and, in answer, would say that the fall of the year is no time to break up new ground or plough stubble, if you desire to secure a crop; and refer to the proposition above laid down, that, to insure success, the ground must be prepared in such manner as to secure the full benefit of all the rains. And this is the second requisite consideration; and this requisite may, in our opinion, be invariably secured by *summer fallowing*. Then, reason says—Summer fallow your grain land.

Now let us see what *nature* teaches, for reason and nature generally go hand in hand, and the former should be so directed as to assist the latter. When the Americans first came to this State, in eighteen hundred and forty-eight, eighteen hundred and forty-nine, and eighteen hundred and fifty, nearly all the land now used for grain raising was annually covered with a luxuriant growth of wild oats, frequently attaining a height of from five to six feet, and producing a heavy yield of grain, which matured in May and June, and fell to the ground. In July and August the sun dried the ground to such an extent as to fill the surface with a perfect network of cracks and openings. Into these openings, secure from the reach of stock, worked a sufficient quantity of grain to re-seed the ground. The rains of September and October closed up these openings, and the grain thus sown and covered received, with the ground, the benefit of the first rains, and sprouted up. During the following rainy season, while the ground was soft, the roots penetrated the earth to a depth sufficient to receive the moisture until matured.

And here we have *nature's* system of grain farming in California—as certain and regular as the seasons—fulfilling, as near as nature can, un-

assisted by art, the conditions laid down by reason as necessary to success. And here, too, we have nature's conclusive evidence in favor of the superiority of California as a grain growing country—for what other country, in a state of nature, has ever been known to produce such marvellous crops of grain as old Californians have seen growing on our plains and on our hill sides?

It is true, the natural crops sometimes failed; but, as intimated above, reason and art should be called in to assist nature, and not to change or thwart her operations, and should be so applied as to remedy nature's weak points—so to speak, to remove the cause of her failures.

The principal cause of failure in these instances, every farmer will agree, is to be found in the fact that the ground, being too hard and compact, the moisture contributed to it during the rainy seasons evaporates in the beginning of the dry, before the grain has time to come to maturity. What, then, is the remedy? Certainly it is not to be found in the mode of farming now generally practiced here, for by this mode the grain is not in the ground until much of the most favorable season for growing has passed, and then the soil is frequently left full of lumps, clods, and inequalities of surface—a condition least favorable for retaining the moisture; or in other words, in the most favorable condition for rapid evaporation that can be imagined. Though disconnected with the subject of moisture, yet closely connected with successful or unsuccessful farming, it may be mentioned here that the system of winter ploughing and annual cropping from the same ground entirely loses sight of another important law of nature most rigidly adhered to in her system of farming above described—namely, compensation. While nature returned to the soil annually as much as she took from it, our California farmers are annually taking all they can get, and giving nothing in return, thus violating every important consideration necessary to success. Then, will summer fallowing remedy the trouble? To a great extent, we think, it will. It may secure all the advantages of early sowing, the full benefits of the first rains, and, when properly done, leaves the ground in the most favorable condition possible for retaining the moisture, and gives the land every alternate year to recuperate. Both reason and nature are in its favor; but to settle the question conclusively, we appeal to facts as found in the answers received from reliable farmers in every part of the State to the following circular, addressed to them by this Department:

[Circular.]

ROOMS CALIFORNIA STATE AGRICULTURAL SOCIETY,
Sacramento, 1864.

SIR:—Will you do me the favor to forward to me by letter at your earliest convenience, and as nearly as you can, the relative amount of grain, say wheat and barley, per acre raised in your neighborhood during the past year, or few years, upon land summer fallowed and that sown in the ordinary manner. I desire to estimate the annual loss to the State by bad cultivation.

Very respectfully, your obedient servant,

I. N. HOAG, Secretary.

We give extracts:

Hon. William L. Dickinson, Assemblyman from Stanislaus and Merced Counties, says:

"I am safe in saying that a difference of ten bushels per acre is saved by spring ploughing (summer fallowing) the uplands. I am of opinion that this difference will not be made on the bottom lands, as they are of a loose and sandy nature, and are kept moist by the fullness of the

rivers, caused by the melting of the snows in the mountains. The advantage in spring ploughing consists in getting the grain in earlier than otherwise would be possible."

Thomas S. Chamberlain, an extensive farmer in Placer County, and a member of the State Board of Agriculture, says:

"My experience has proven to me that the difference in yield between summer fallowing and land sown in the ordinary way is fully three eighths in favor of summer fallow; that is to say, where a farmer raised one hundred bushels on land sown in the ordinary way, he would have raised one hundred and thirty-seven and a half bushels if he had summer fallowed."

He estimates the loss to Placer County by bad cultivation, or by neglect to summer fallow the land sown to grain, to have been, in eighteen hundred and sixty-three, as follows:

Of barley, bushels	22,430
Of wheat, bushels	32,750
Total	55,180

And then says: "The above estimate will hold good for the last two or three years."

"This year (summer of eighteen hundred and sixty-four) is entirely different from anything we have ever had in this county—caused by the drought. There was about the usual number of acres sown, about one fourth summer fallowed. The summer fallow will yield from a fourth to half a crop; the other will produce from nothing to an eighth."

J. P. Dameron, of the same county, says:

"There is a difference, in ordinary seasons, of at least one third in favor of summer fallowed land. This statement is based upon the experience of our best farmers, who have tested the matter. This season has thoroughly tested the question of summer fallowing land for grain. That sown in the ordinary way will not make an average of ten bushels, while that sown on summer fallowed land will average about twenty. The summer fallow stands the drought, and has matured a full, fine berry, while the other is small and imperfect."

Mr. John Ramon, of Camptonville, Yuba County, says:

"As high up as here no grain is raised, except oats for hay—California wild oats. Those sown early in the fall, on summer fallowed land, produce, except when heaved out by heavy frosts, a certain crop, and the farmer can count on as much again as on lands ploughed and sown during the winter or spring. This mountain land, when favorably situated towards the sun, and not too loose, produces good wheat and barley, but, on account of the rough surface, cannot be cultivated as cheaply as

valley land. The last winter drought has had no effect on the crops about here. We have excellent crops."

Honorable J. C. Sargent, of Marysville, Yuba County, says:

"The yield of summer fallowed land, to say the very least, is fifty per cent in advance of that sown in the ordinary manner. About the only wheat we have raised this year has been on summer fallow, but to barley it has been of no advantage. This is not the fault of the system, however. The average amount of grain harvested per acre, in this county, will not exceed three bushels—I mean all the grain sown."

E. McDaniel, Assessor of Colusa County, says:

"I have been farming in this county for ten years, and I speak for this county only. For the first five years we sowed grain in the usual way, and our average of wheat was about from twenty to twenty-five bushels per acre; barley some better. For the last five years we have been trying the experiment of summer fallowing some, and we raise about double the amount of grain to the acre, and much better and heavier grain. My experience is that we need all the season for grain to make itself in. The earlier grain is sown in the fall the better."

He is decidedly in favor of a plan for using some of the water of the upper Sacramento River to irrigate the tillable land in Colusa County, and says, "with this irrigating system in operation, we have the best land for agricultural purposes in the world."

Mr. James Mitchell, of Sutter County, says:

"On new ploughed land we raise of barley from twenty-five to thirty bushels to the acre. On summer fallowed, from thirty-five to forty. Of wheat, from twenty-five and thirty to thirty-five."

Mr. A. L. Chandler, of Nicolaus, Sutter County, says:

"I should estimate the amount of grain raised in this neighborhood for the past few years to be about thirty bushels to the acre for summer fallowed land, and about twenty for that sown in the ordinary way, or fully one third in favor of the summer fallow system. The difference this year (eighteen hundred and sixty-four) is even greater, for in most cases where land was *deeply* summer fallowed, the yield is from one third to two thirds in favor of this method."

The following letter from Mr. Henry Gaddis, of Yolo County, speaks so well for itself, and presents the whole subject in so clear a light, that we insert it entire:

GRAFTON, Yolo County,
July 5th, 1864.

Mr. I. N. HOAG, Esq.:

DEAR SIR:—In compliance with the request contained in your circular, I herewith submit a few facts and opinions derived from my experience in regard to summer fallowing, as compared with land tilled in the ordinary manner. During the past six years, I have prepared a portion of my land for grain by this process, and the result has been an average of

forty bushels of wheat per acre, while I am sure that the land ploughed and sowed in the common way has not yielded fifteen bushels per acre in the same space of time, thus realizing a difference of nearly three to one in favor of the fallow ground. Take, for example, the year eighteen hundred and sixty-two, in which I harvested from a fallow crop, fifty bushels (sixty pounds) per acre, while most of my neighbors, as well as myself, raised about half of that yield, or even less, by the common method. Again, in eighteen hundred and sixty-three, I had a piece, containing about ten acres, that yielded, according to the best estimate I could make, thirty bushels per acre, although imperfectly fallowed, while grain grown beside it in the same field, and sown at the same time, produced about six bushels. Some of my neighbors have taken note of these facts, and those who were formerly sceptical are now fully satisfied of the importance and benefit of the fallowing process, and many have broken up their land during the past winter, so as to sow early and receive the benefit of the first rains.

I consider this a subject of very great importance to the grain growers of the State, and one that will scarcely be overestimated by them. It is decidedly the most economical method of farming; a farmer can (if he chooses, and has the means to do so) double the quantity of land he cultivates; or he can raise the same quantity of grain upon half the land that is required by the common method, (and I am convinced that in many seasons the difference would be greater than this,) thus saving half the cost of tillage, seed, and harvesting.

There is another difference in the two modes of farming: the farmer who ploughs his land in advance of the season pushes his business before him, is not pressed for time, but can sow his grain before the heavy rains fall; but he who pursues the other method is always in a hurry when ploughing time commences, and the results, in many cases, are very unsatisfactory.

I consider the practice of summer fallowing peculiarly adapted to the climate of California, especially on clay soils. Though it is as old as Jeremiah, who takes notice of it, (Jer. 4, iii,) it has not been much in favor in this fast country, because, by such means, a smaller number of acres is brought under tillage in the same season, yet it must be admitted that the advantages derived from it are so conspicuous that no reasonable person will condemn it. It is, perhaps, too much to say that the original vigor of partially exhausted soils is always restored by the fallowing process. But there can be no doubt that land in this condition is fertilized by becoming more absorbent of the ammonia and fertilizing gases of the atmosphere, which are brought down by the rains, and contribute to the nourishment of plants, as well as by the preparation of the chemical agencies contained in the soil, which are thus preserved in a state for future use. My experience in grain growing, and my opportunities of judging by the experience of others, have not been extensive, but the results of my observation and experiments have been so gratifying, that I am astonished that every farmer does not practice a system so conclusively excellent and profitable.

Yours, very respectfully,

HENRY GADDIS.

Mr. S. F. Hyde, of Solano County, says:

"There was a piece of barley, of from thirty to thirty-five acres, near the head of Linda Slough, in this county, from which was harvested this year, (eighteen hundred and sixty-four,) five hundred sacks, or very near

one thousand bushels. The land was ploughed late in the spring of eighteen hundred and sixty-three, very deep, and again in the fall or winter. The grain was then sown on it, and ploughed in, and harrowed down level. There was no other grain raised anywhere near this, on account of the drought. Though several pieces were sown in the ordinary way —that is, by ploughing and sowing in the winter—in the immediate neighborhood of this piece, yet they produced nothing. The land on which this grain was raised is adobe or clay soil. Another piece of three acres near me, of similar soil, was ploughed in the spring of eighteen hundred and sixty-three, late, and harrowed down smooth; in January, eighteen hundred and sixty-four, was again ploughed, and the grain harrowed in. This was Sonora wheat, and will yield thirty bushels to the acre. There was not another piece of grain harvested, this year, within ten miles around it on account of the drought."

Mr. J. W. Pirkey, of San Joaquin County, says:

"My opinion, based upon actual experience in grain raising in this county for a number of years, is that double the amount of grain may be produced by summer fallowing the land, than by the usual manner of ploughing and sowing after the rains fall in the winter."

Mr. J. D. Mason, near Ione Valley, Amador County, says:

"There has never been much ground summer fallowed in this vicinity, so that we have no means of knowing the effect here. A few plough the dryest land in the spring and let it remain, and sow in the fall or first rains. It is the opinion here that if the ground is sown in December it is sufficiently early on most of the upland. Better crops are raised on the bottoms, if sown in February or March, than where sown earlier, as there is less growth of straw and more grain. In regard to the drought this season, (eighteen hundred and sixty-four,) one or two farmers in this vicinity have a third of a crop, the greater portion not over a tenth, and some none at all. I do not think this valley (Jackson Valley) averages more than a tenth of the usual crop of hay and grain."

Mr. W. R. Morris, Assessor of Sonoma County, says:

"I have taken promiscuously, from different parts of the county, two thousand acres of wheat, and find the average yield to be about thirty bushels. Six hundred acres of corn, taken promiscuously from the county, gives thirty-eight bushels per acre. Barley, three hundred acres, gives thirty bushels per acre. Oats, one hundred and twenty-five acres, gives forty-three bushels per acre. The greatest yield per acre of wheat, is one hundred acres, fifty bushels per acre; that of corn, sixty bushels. The above is the ordinary way of sowing grain. I know of no land summer fallowed in this county; consequently cannot give you the difference in the two modes of cultivation."

The above estimate is for eighteen hundred and sixty-four. Sonoma has suffered very little from drought this year. Rains continued through this portion of country as late as June.

From Santa Clara County no answers have been received from any

one engaged in grain farming; one from Honorable Joseph S. Wallis is inserted in full. It needs no comment:

MAYFIELD FARM,
April 30th, 1864.

To I. N. HOAG, Esq.,
Secretary State Agricultural Society, Sacramento:

MY DEAR SIR:—After careful inquiry, I cannot learn that one acre of land in this section of Santa Clara County has ever been summer fallowed. I refer to all the land lying west of Mountain View, within a circuit of six miles, in which about three thousand five hundred acres of land are annually sown to grain, chiefly wheat. I have met several persons who for several years have been engaged in farming in this valley, who did not know what was meant by summer fallow. Others, not fully understanding the benefits growing out of this method of cultivating the soil, thought it would be so expensive a process that they could not afford to adopt it, or even attempt the experiment. They feared the loss of time would prove unprofitable. I am satisfied the large portion of our agricultural population do not understand the great benefits derived from this truly correct, scientific principle of working the peculiar soils of this State. I am not a farmer, having always been accustomed to city life till within the past six years, and during my residence in the country have not raised a pound of grain, devoting my time wholly to pomological and horticultural pursuits; yet my experience in working the grounds of my orchard fully satisfies me that if the farmer in this country would be successful, he must summer fallow his grounds.

I am, my dear sir, yours very truly,
JOSEPH S. WALLIS.

Mr. William O'Donnell, of San José, says:

"I am not very well posted as to grain raising, but I would say, from my observation, summer fallow, put in in good time, will average fifty bushels to the acre, while land ploughed and sown in the winter, in the usual way, will not average more than twenty-five bushels to the acre. There is nothing of so much importance to the farmer as to urge upon him to summer fallow his grain land. The next important thing is to plough deep and put the crops in in good time. It was astonishing to me last summer, (eighteen hundred and sixty-three,) in driving through our valley, to see so many acres of wheat and barley not worth cutting—the effect of shallow ploughing and late sowing.

"The next thing of importance is to save the manure, and use it before the land is exhausted."

Honorable A. Van Leuven, Assemblyman from San Bernardino, says:

"We do not summer fallow, on account of the drought and hot weather, and only commence putting in our land after the rains in the fall. In fact, we cannot plough our lands till then. We irrigate most of the land we cultivate, to get a crop."

Honorable Thomas Scott, member of Assembly from Alameda County, says:

"The amount of wheat and barley per acre raised in my neighborhood for the year eighteen hundred and sixty-three, and a few years previous, was about twenty bushels of wheat and twenty-five of barley, upon land sown in the ordinary manner. The farmers of this county (at least but very few of them) have not adopted the plan of summer fallowing their land. The increase of yield, in my judgment, upon summer fallowed land would be at least one quarter."

Mr. Alexander Dennis, of Jenny Lind, Calaveras County, says:

"The proprietors of four ranches in my immediate vicinity last year worked over their land double the amount they were accustomed to, and the result has been that we who did so have raised from forty-five to fifty bushels of grain to the acre, while adjacent ranches, worked in the ordinary way, have raised scarcely enough to seed them.

"From four years experience, my opinion is that on moist alluvial soils of this State the better way is to plough very early, just as soon as the rains of winter moisten the ground, and let it lay in the furrow from three to five weeks, or more if possible, by which time the soil is sufficiently aired and fertilized, then harrow once, or cross plough, and sow and put in immediately. This mode has produced the finest results in all my observations; and from what I can gather from agriculturists on cereal or uplands, the results of such a course are nearly if not quite equal to summer fallowing. The way I philosophize on it is that in one week after the rainy season has set in, there is more of the elements of fertilization precipitated to the soil in one week than in two months during the summer. This, at any rate, is certain, that all, or nearly all, vegetable fermentation has nearly subsided in three or four weeks from the time the furrows are turned, or after the first rains, consequently the air at the expiration of that time contains but little of the fertilizing gases caused by such decay and fermentation, provided it rains during the last week before sowing, and thus returns to the soil the full strength of such fermentation. This mode, if producing good results, would save the farmer the necessity of having large farms lay idle one year, in order to institute summer fallowing; but, in my opinion, the day is not far distant when summer fallowing on uplands for cereals must be resorted to to raise anything like good crops. On bottom lands, the plan above described, of fallowing one month or more, in my opinion, may be sufficient. In my immediate vicinity there has been raised this year, (eighteen hundred and sixty-four,) twenty thousand bushels of barley, averaging over forty bushels to the acre, all of which lands were fallowed. Other lands did not raise more than one ton of hay to the acre.

"The land lying between here and Stockton has not produced, in all, this season, one quarter enough to seed it for next year. Most of the farmers on those lands are of the order I first mentioned, (following in the footsteps of their fathers and grandfathers,) and consider fallowing all moonshine. I am inclined to think a few years like this will change their views of the matter.

"In conclusion, I will say that in all cases within my experience or observation, summer fallowing, (or temporary, as above described,) has produced fully double the grain on upland, and one third more on bottom land, than similar soils ploughed and immediately put in."

Circulars were sent to many other individuals residing in all parts of the State, but the above are all the answers received. They represent

most of our principal grain growing counties, and may, we think, with safety be taken as a standard for all. An average of the above estimates show an increase of more than eight tenths in favor of the summer fallowing system. That is to say, if ten represents the number of bushels of grain raised on a piece of land sown in the ordinary way, then eighteen would represent the number of bushels raised on the same piece of land if summer fallowed. Then, *reason*, *nature*, and *facts* all agree, and in an unmistakable manner point out to the California grain farmer the cause of his failure in the past, and the means of improvement and success in the future. In the light of the above facts, let us see what is the annual loss to the State in the items of wheat and barley by bad cultivation.

In eighteen hundred and sixty, the quantity of wheat and barley raised in California, as shown by the United States census, was—

Wheat, bushels	5,946,619
Barley, bushels	4,507,775
Total	10,454,394

Suppose one tenth of this was raised on land summer fallowed. Then nine tenths—equal to nine millions four hundred and eight thousand nine hundred and fifty-five bushels—could have been increased, by summer fallowing all the land sown, by an addition of eight tenths. Eight tenths of nine millions four hundred and eight thousand nine hundred and fifty-five is seven millions five hundred and twenty-seven thousand one hundred and sixty-four. This, then, is the loss in bushels to the farmers and State for one year—eighteen hundred and sixty. It certainly has been equally as great for each year since, including eighteen hundred and sixty-four—making the whole loss for the last five years equal to thirty-seven millions six hundred and thirty-five thousand eight hundred and twenty bushels. In other words, thirty-seven millions six hundred and thirty-five thousand eight hundred and twenty bushels of grain could have been added to the productions of the State by a proper system of cultivation without increasing the number of acres of land annually cultivated. But this is not all. Could we estimate the damage to the State by the useless exhaustion of the soil, the result of the system of cultivation and waste of fertilizing agencies which has been practiced, and the effects of which we are yet to experience in the deduction from our future crops, we have reason to believe the loss above indicated should at least be doubled, if not quadrupled. But, let us take another view of this matter, for it is only by a discovery and an appreciation of our errors that we are induced to correct them.

Suppose the farmers of California had, for the last five years, cultivated well in wheat and barley, on each alternate year, one half the land they have done, allowing the other half to rest and recuperate alternately—helping it to do so with manure, rotted straw, etc., much of which has been burned and wasted—what would have been the result different from what it now is? We call upon you, farmers, to say whether the following answers do not truthfully indicate that result, and, if so, to commence now to bring about so desirable a change by using the means in your power:

First—Very nearly if not quite the same amount of grain would have been raised, and that of a much better quality.

Second—One half the seed would have been saved.

Third—One half the money paid out for labor and team work in preparing the ground would have been saved, for every farmer could have done nearly all this within his own family, at a time when, by the present system of working, they have had nothing to do; and each year he has been compelled to hire a large number of men and teams in order to rush things, and plough, prepare, and sow during the short time each winter the ground was in a proper condition to work.

Fourth—One half the expense of cutting and gathering the crop would have been saved.

Fifth—All the land cultivated in this manner would have remained strong and vigorous, as good if not better than new.

Sixth—The farmers and their families would have become more and more attached to their occupation, each year more independent and more happy, instead of more and more disgusted with it, and poorer and more miserable.

Seventh—Our State would then have gained an agricultural reputation unequalled and unrivalled, a much larger immigration would have flocked in upon us, all other dependent industrial pursuits would have been invigorated with a proportionate increased success and prosperity, and in their time would have contributed to the general advancement of the whole.

Although this article is already much longer than we intended to write, still we feel called upon by the importance of the subject to remark that there never was a better time than the present for the farmers of California to inaugurate a much needed reform in grain raising. Many of them will have to commence the world again this fall, as it were, anew; will have to buy their seed, and food for themselves, their help, and teams, at a high price. Instead of attempting to put in a large number of acres, then, put in a smaller number, and put that in well; thus save in buying seed, and paying help and feeding them.

The land that was sown to grain last year, and upon which the crops have failed, though, to give it the advantage of the summer fallowing, should have been cross ploughed and harrowed well in April or May, and thus put in a condition to collect the greatest quantity of fertilizing agencies from the heat of the sun and the circulation of the atmosphere during the summer; yet if ploughed early and deep, and well pulverized, may still be in a favorable condition for a crop.

After sowing the grain and covering it well, let the roller (every farmer should own and use one in this country) be put on, and with it pack the surface well together. This presses the mellow soil compactly about the kernel, thus giving it the most favorable condition for a quick and lively germination, so very necessary for its future health, and placing it at the same time in the best state to induce the vigorously started roots to penetrate so deep and obtain such a hold in the ground before the dry season commences as to render a good crop almost a certainty.

COLLECTION AND DISTRIBUTION OF AGRICULTURAL STATISTICS.

The value of correct and reliable statistics of agricultural productions is coming to be understood and acknowledged by the more intelligent of all civilized countries, but Governments are found to be slow in furnishing the means and systematic machinery for the early collection and proper distribution of such statistics among the people.

Knowledge is said to be power, but knowledge is of but little practical value unless generally diffused among those who may be most benefited by its possession.

These observations are peculiarly and forcibly applicable to our own country, where agriculture is and must always be the chief pursuit of the people and reliable support of the Government, and where every citizen is a sovereign and a law maker. Upon our agricultural resources and productions depends our power as a nation, and upon a proper knowledge of those resources and productions depends not only the degree of that power, but its advantageous use and application.

Commerce and manufactures are but the adjuncts of agriculture; the former lives by distributing the productions of agriculture, and the latter by converting those productions into the various forms which render them more useful and convenient to civilized man. Agriculture is the great producer of civilization; commerce and manufactures are its legitimate results and immediate dependents. Hence it is, that agricultural statistics, correctly and timely collected, are so much sought after by careful and successful business men, and are of so much value to commerce and manufactures, and to Governments; while the records of the latter pursuits are principally useful as they indicate indirectly the extent of our agricultural productions. But while the men of commerce, the manufacturers, seek for the earliest and most reliable information as to the quantity and kinds of the products of the soil, and use such information to their own great advantage, and while our Government depends upon these statistics as a basis, in a great measure, in estimating its revenue, both internal and external, and as indicating its strength and power and consequent position among other nations of the earth, yet it is an indisputable and lamentable fact, that the most useful and beneficial application of these statistics, both to the citizen and the Government, is yet

to be made. That branch of industry to which this information should and may be of the most advantage, and which is most entitled to its benefits, is yet to learn or to experience the value of its application. We refer to agriculture itself. It is to the farmers themselves that an early and correct knowledge of what may be and what is produced on the farms of any and every country, should and will be of the most advantage, and through them this knowledge will be rendered of the greatest benefit to the Government. Guided by this valuable and timely intelligence, the farmers will not only be led to cultivate those kinds and varieties of productions best adapted to the soil and the climate, and most demanded by the best interests of the country, but they will be thus enabled to procure for those productions prices regulated honestly by the laws of demand and supply, and not be compelled to receive, as is now too much the case, the fictitious prices regulated by the schemes of speculators. While the farmers are trudging and toiling, in planting, protecting, and harvesting their crops, they have no time or means to ascertain the facts necessary to estimate the demand and supply.

The speculator, on the contrary, stimulated by the prospects of large gains, and having abundant leisure and means, possesses himself of all the facilities, and thus learns each year the amount of productions held over from the last harvest, investigates the average prices paid, keeps himself well posted as to the state and prospect of the growing crops throughout the country, and being thus prepared, makes a very correct estimate of the relative supply and demand, and coolly and systematically calculates his profits.

By a combined effort they operate upon the fears and necessities of the farmers until they obtain the control of the market. When too late the farmers discover that the profits of their year's labor have stepped, instead of into their own pockets, where they legitimately belong, into those of a comparatively few sharpers. Thus, from year to year, their hard earned gains slip from their hands just as they are about to secure them. Their families are deprived of the comforts, and even necessaries, which for a whole year past they had been faithfully and diligently striving for, and which they had fondly but vainly anticipated would be their delight to enjoy—to say nothing of the inability of many to pay the interest on the debts, the principal of which they had promised and expected to cancel, and the disappointments and sufferings upon the failure. This is but a half drawn picture, yet through it may be seen enough of the deformities of the whole. It indicates a state of things which should not be permitted to continue in a State which seeks to deal fairly with and do justice to all classes of its citizens. The above considerations, though sufficient in themselves, are not the only ones which should prompt the State government to correct these evils. It requires no very far seeing mind to discover the effect thus produced on the general prosperity of the State, and, as a consequence, the deficiency in the annual receipts of revenue into her Treasury.

To realize these facts in all their truthfulness and force, we have only to reflect how much more a few millions of dollars, retained in the hands of the farmers, and thus fairly distributed through the agricultural portions of our State, in any one year, would add to the general prosperity, than does the same amount deposited in the coffers or expended on the mansions and equipages of a few.

And again, how much more a thorough cultivation of the soil, a proper adaptation of the crops to the same and to the climate, and a judicious division of the kinds, varieties, and quantities of those crops, would add

to the wealth of the State in any one year than does the present defective and unskilful mode of cultivation, the want of adaptation to soil and climate, except by chance, and the superabundance of one kind, at the expense of others more needed and much more profitable.

Repeat this annual estimate year after year for ten years, then for a hundred, and so on *ad infinitum*, and a proper realization of what our State is losing by neglecting to provide, or assist in providing, a thorough system for the collection and distribution of her agricultural statistics.

Section five of the Act of March twelfth, eighteen hundred and sixty-three, organizing this department and defining its duties, reads as follows:

"The Board of Agriculture shall use all suitable means to collect and diffuse all classes of information calculated to aid in the development of the agricultural, stock-raising, mineral, mechanical, and manufacturing resources of the State; shall hold an annual exhibition of the industry and products of the State, and on or before the first day of January of each year in which the Legislature shall be in regular session, they shall furnish to the Governor a full and detailed account of all its transactions, including all the facts elicited, *statistics collected*, and information gained on the subject for which it exists; and, also, a distinct financial account of all funds received, from whatever source, and of every expenditure for whatever purpose, together with such suggestions as experience and good policy shall dictate for the advancement of the best interests of the State; the said reports to be treated as other State documents."

The duties of the department are thus clearly defined, but the means for the accomplishment of those duties were left unprovided. Prompted by the considerations set forth in the preceding portions of this article, and with a view to supply the necessary means and machinery for the performance of these important duties in a correct and reliable manner, the Secretary, acting under the direction of the Board of Agriculture, prepared a bill, the operations of which, had it passed, in conjunction with a system of correspondence with intelligent and reliable persons in the different counties, relating to the state of the weather and the appearance and prospects of the crops, and the periodical issuance of circulars containing in a condensed form the information thus gained, would have accomplished, it is believed, in a few years, an entire revolution in the mode of conducting the agricultural operations of the State.

Having obtained for it the hearty approval of nearly all the organized District and County Agricultural Societies in the State, he submitted the same to the Committee on Agriculture in the Assembly of the last Legislature. The committee unanimously recommended the same, and introduced it as a substitute for a bill previously introduced by the Honorable Mr. Dodson, of Lake, having the same object in view. Unexpectedly, the bill met with violent opposition from many of the representatives of the mining counties, for the alleged reasons that it sought to gather statistics in regard to the mines and mining interests of the State, which was impractical and unnecessary, and that it would entail an expense on the State greater than the value of the information gained.

To the first objection, though not convinced of its truth, and in order to secure the statistics in regard to agriculture, the representatives of the agricultural counties yielded by striking out of the bill the clause: "The number of acres of mineral land, and the kind of minerals known

to be contained therein, and the probable value thereof." Notwithstanding this, the bill was, after much discussion, finally defeated by the exertions and votes of the representatives of the mining counties arrayed against those of the agricultural.

It is unfortunate for the general interests of the State that there has existed for some years in our Legislature a feeling of distrust between the mining and agricultural portions of the State, having its origin in a desire that all species of property should bear its legitimate portion of the burdens of the government. In attempting to put in practice this very just and equitable proposition, the two interests have been brought in collision—the agriculturists insisting that the mines are property, and should be taxed, while the miners maintain that if they are property, they are of that uncertain and indefinite kind of property which cannot be correctly or equitably assessed, and therefore should not be taxed—that it is sufficient to tax the proceeds after they are extracted from the mine. The whole subject is involved in difficulties and embarrassments, and we do not desire to express an opinion in the premises; but we do desire to protest, in this age of progress and improvement, when emigrants from all the old countries and the Atlantic States are anxiously searching every channel of information from this coast, both in regard to our agricultural and mineral interests, against a policy of legislation the effect of which is to retard the development of the boundless resources of our State.

What we want, above all things, on this coast is the establishment of a proper channel for the collection and distribution, here and elsewhere, of correct and reliable information in regard to our two great leading interests—agriculture and the mines. And he who fails to comprehend the importance of legislation having this end in view, or he who does not recognize in the interests of the one the interests of the other, or in other words, that the prosperity of the one depends upon the prosperity of the other, and that the prosperity of the State depends upon correct and reliable information in regard to both, fails to realize the responsibility of his position as a citizen and a legislator.

No paltry consideration of the expenditure of a few dollars, no local or sectional advantage, or pride of power, should be allowed to interfere when questions affecting the prosperity of all our interests are involved. The State Agricultural Society has ever labored with as much zeal for the advancement of the mineral interests of our State as for those of the agricultural, and this volume is an evidence of the truth of this assertion. It has never interfered with or even expressed an opinion upon the subject of taxing the mines. It has always given its influence in favor of liberal appropriations for the advancement of the geological survey of our State, and now only desires, as the proper medium, to be placed in a position and furnished with the means and machinery to collect and distribute, in an official manner, valuable and reliable information in regard to our agricultural interests and agricultural resources. And it is now becoming to be generally understood that many of those interests, in the shape of valuable vineyards, are located in those portions of the State which but a few years since were considered valuable only for the mines they contained. There are millions of acres of land in the mining counties ten to one more valuable for vineyards and orchards than for mining. We desire to search out this land, and publish to the world its advantages and immense value, not only to the indi-

viduals who may thus be induced to settle and improve it, but to the State at large. In order that this matter may be correctly understood, and that it may be fully discussed, we deemed it proper to say thus much, and to insert a copy of the bill referred to in this record of the Society's transactions:

AN ACT

TO PROVIDE FOR THE COLLECTION AND PUBLICATION OF AGRICULTURAL AND OTHER STATISTICS OF THE STATE.

The People of the State of California, represented in Senate and Assembly, do enact as follows:

SECTION 1. It is hereby made the duty of each County, District, and Township Assessor in this State, at the time of listing or assessing the property in his county, district, or township annually, to ascertain the number of acres of land improved and occupied for agricultural purposes during the preceding year, and the value thereof; the number of acres of mineral land, and the kinds of mineral known to be contained therein, and the probable value thereof; the number of acres in natural and in cultivated grasses or grain for hay, and the number of tons each of cultivated natural wild oats and natural hay produced; the number of acres of wheat, and the number of bushels; the number of acres in barley, and the number of bushels raised; the number of acres in oats, (other than for hay,) and the number of bushels raised; the number of acres in rye, and the number of bushels raised; the number of acres in maize or Indian corn, and the number of bushels raised; the number of acres in buckwheat, and the number of bushels raised; the number of acres in beans, and the number of bushels raised; the number of acres of peas, and the number of bushels raised; the number of acres in potatoes, and the number of bushels raised; the number of acres of onions, and the number of bushels raised; the number of acres in cabbage, and the number of tons raised; the number of acres in carrots, and the number of tons raised; the number of acres in mangel wurzel, beets, and turnips, and the number of tons raised; the number of acres in pumpkins, and the number of tons raised; the number of acres of melons, and the value of the crop; the number of acres in sorghum, and the number of gallons of syrup made; the number of acres in market gardens, and the value of the crops; the number of acres in tobacco, and the number of pounds of cured tobacco made; the number of acres in hemp, and the tons of hemp made; the number of acres of flax, and the tons of flax made; the number of grape vines in bearing, and the number not in bearing; the total number of pounds of grapes raised, and the number of gallons of wine and of pounds of raisins made; the number of each of the following trees and vines in bearing, and the number of each not in bearing, and the value of the product of each kind, to wit: apple, peach, pear, plum, prune, cherry, quince, apricot, nectarine, fig, olive, almond, walnut, chestnut, filbert, orange, lemon, lime, pomegranate, mulberry, raspberry, blackberry, gooseberry, currant, and strawberry; the number of hives of bees, and number of pounds of honey made; the number of horses; of mules; of asses; of work oxen; of milk cows; of other horned cattle; of sheep; of hogs; of goats; of fowls; of turkeys; of ducks; of geese; of pounds of wool

sheared; of pounds of butter made; of pounds of cheese made; of dozens of eggs gathered; of cattle slaughtered, and of their value; of sheep slaughtered, and their value; of hogs slaughtered, and their value; the number of grist mills of steam power, of water power, and run of stone, and bushels of grain, and kinds of same ground; the number of saw mills of steam power, of water power, feet of lumber and thousands of shingles made; the number of quartz mills, and stamps and amalgamating pans in use; the tons of quartz crushed, and quantity and value of the different kinds of minerals produced; the number of mining and irrigating ditches or canals, [and] the length and capacity of each; the number of toll bridges, toll roads, turnpikes, railroads, and the number of miles of each; the number of and kinds of manufacturing establishments of every description, and the quantity and value of articles manufactured, and of such other things as the Secretary of the State Board of Agriculture may direct statistics to be taken of. All the above statistics shall be taken of the preceding year.

SEC. 2. Each Assessor shall, on or before the first day of October, make up, in duplicate, a report of the statistics which the first section of this Act requires to be taken; and, having attached his oath or affirmation to each, as to its correctness, shall file one copy thereof with the Board of Supervisors of his county, and shall transmit the other, by mail, to the Secretary of the State Board of Agriculture, at Sacramento, and pay the legal postage thereon. This report shall be made in such form as the Secretary of the State Board of Agriculture may direct, and upon blanks to be furnished by him; and for making such report, and for all time necessarily spent in collecting the statistics required, in addition to the time necessary for making the assessment, the Assessor shall receive the same per diem, to be audited and paid in the same manner as for making up the assessment; *provided*, however, that the several Boards of Supervisors are hereby prohibited from auditing or allowing any salary or compensation to any Assessor for over one half the time spent by himself, or any of his Deputies, in making the assessment or collecting the statistics required, until such Assessor shall have produced the receipt of the Secretary of the State Board of Agriculture for the report herein required; and *provided*, also, that the Assessor who shall make up and present the best and most comprehensive statistical report of the productions of his county, district, or township, together with the best general descriptive report of the characteristics and capabilities of his county, district, or township, shall receive the sum of seventy-five dollars; and the Assessor who shall make up such second best statistical and general report, shall receive the sum of fifty dollars; such premiums to be awarded by the State Board of Agriculture, and paid out of the money appropriated by the Legislature to the State Agricultural Society for premiums.

SEC. 3. It is hereby made the duty of the Secretary of the State Board of Agriculture to prepare blank forms for gathering and reporting the statistics, and cause a sufficient number of the same to be printed, and transmitted to each Assessor in the State, before the first day of March of each year, together with a circular containing full instructions to said officers. He shall, also, prior to the first day of December of each year, compile, from the returns of the Assessors, tables of the agricultural, mineral, and manufacturing productions of the State, and, in connection with the report of the transactions of the Board of Agriculture, furnish the same to the Governor, who shall cause such report and statistics to be printed and published annually, and shall communicate

copies thereof to the Legislature, at the beginning of each regular session. The printing required by this Act shall be done by the State Printer, and shall be paid for as other public printing.

SEC. 4. This Act shall take effect immediately; and all Acts and parts of Acts requiring the Surveyor-General to furnish instructions or blanks to Assessors, and requiring Assessors to make reports of statistics or otherwise to the Surveyor-General, and all Acts and parts of Acts conflicting with the provisions of this Act, are hereby repealed.

STATISTICAL TABLES.

TABLE OF STATISTICS

Compiled from the Official Reports of County Assessors for the Year 1863, *returned to the Surveyor-General.*

COUNTIES.	Acres of Land inclosed	Acres of Land cultivated	WHEAT.		BARLEY.	
			Acres	Bushels	Acres	Bushels
Alameda	81,460	84,320				
Amador	38,483	10,290				
Butte	100,000	60,000	20,000	400,000	15,000	500,000
Calaveras	106,676	12,182				
Colusa	107,000	43,000	17,530		19,000	
Contra Costa						
Del Norte						
El Dorado	212,500	31,000	165		1,975	
Fresno						
Humboldt	15,036	4,419	973	29,055	109	4,375
Klamath	2,185	1,383				
Lake	24,550	4,593				
Los Angeles						
Marin	121,274	10,808	3,057	122,280	680	27,200
Mariposa	9,538	2,572			300	9,000
Mendocino	95,500	50,400				

Merced	18,417	15,000	1,530	25,840	3,750	75,090
Mono						
Monterey	117,400	22,191	3,270	63,400	6,780	834,200
Napa	80,000	35,000	30,000	600,000	2,400	72,000
Nevada						
Placer	136,976	21,100	4,509	71,048	2,950	49,874
Plumas						
Sacramento	98,980	32,043	6,185	152,000	11,630	327,000
San Bernardino	20,000	15,000				
San Diego	4,500	3,000				
San Francisco			902	34,240		7,240
San Joaquin	263,400	175,000	60,000	600,000	70,800	566,400
San Luis Obispo	10,000	3,000	500	5,000	1,500	22,500
San Mateo	120,200	35,000	12,250	238,250	3,260	96,800
Santa Barbara	4,500	1,500	50	1,200	50	2,000
Santa Clara	380,000	165,000	77,000	1,250,000	20,000	400,000
Santa Cruz	56,340	18,003	7,020	161,992	2,862	103,775
Shasta						
Sierra	12,300	700			18	1,000
Siskiyou	54,000	28,000	4,700	70,000	4,000	80,000
Solano	360,582	82,828				
Sonoma	193,161	47,794				
Stanislaus	28,000	10,653	2,542	32,120	2,648	64,500
Sutter	84,300	25,700		105,600		160,000
Tehama	51,736	14,612	7,280	127,286	6,205	87,462
Trinity	8,457	2,534	100	2,500	156	3,000
Tulare	25,000	10,225				
Tuolumne	89,632	29,678	965	5,190	2,855	3,458
Yolo	110,000	50,976				
Yuba	165,840	38,480	2,680	50,648	12,460	326,800
Totals	3,407,923	1,197,984	263,208	4,147,649	191,388	3,833,674

TABLE OF STATISTICS—Continued.

COUNTIES.	OATS.		RYE.		CORN.		BUCKWHEAT.		PEAS.	
	Acres.....	Bushels.....	Acres.....	Bushels.....	Acres.....	Bushels.....	Acres.....	Bushels.....	Acres.....	Bushels.....
Alameda										
Amador										
Butte	500	1,800	100	4,000	400	10,000				
Calaveras										
Colusa	5,900	20,000			840					
Contra Costa										
Del Norte										
El Dorado	2,100									
Fresno										
Humboldt	1,134	40,870			149	5,850			591	21,675
Klamath										
Lake										
Los Angeles										
Marin	4,756	237,800								
Mariposa	175	875							3	
Mendocino										

Merced			35	709	400	7,030				
Mono										
Monterey	300	7,500			200	4,000	45	900	250	5,000
Napa	825	24,700	30	600	600		25		25	
Nevada										
Placer	347	1,727	26	60	9	60				
Plumas										
Sacramento	536	17,733	5	114	281	4,925				
San Bernardino										
San Diego										
San Francisco	80	1,600								600
San Joaquin	1,000	20,000	700	10,000	600	18,000	300	6,000	20	1,000
San Luis Obispo	200	4,000			2,000	80,000			1,000	30,000
San Mateo	6,000	240,000							50	1,000
Santa Barbara					150	2,400				
Santa Clara	2,000	60,000			400	14,000				
Santa Cruz	909	27,838			198	3,943	213	4,316	59	2,095
Shasta										
Sierra										
Siskiyou	8,800	70,000	250	1,500	300	5,000			20	
Solano										
Sonoma										
Stanislaus					200	4,410				
Sutter						1,600				
Tehama	37	895	3	40	168	5,894			10	275
Trinity	50	1,500			40	1,000			5	125
Tulare										
Tuolumne										
Yolo										
Yuba	1,230	24,685	14	240	2,240	58,485				
Totals	36,879	803,523	1,163	17,263	9,355	226,579	583	11,216	2,033	61,770

TABLE OF STATISTICS—Continued.

COUNTIES.	BEANS.		POTATOES.		SWEET POTATOES		ONIONS.		HAY.	
	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Bushels.	Acres.	Tons.
Alameda										
Amador										
Butte									10,000	12,000
Calaveras										
Colusa	40								9,560	10,000
Contra Costa										
Del Norte										
El Dorado									5,100	6,000
Fresno										
Humboldt	14	400	225	37,980					150	600
Klamath										
Lake										
Los Angeles										
Marin			2,115	253,800					1,500	3,000
Mariposa	10		150	15,000			10	2,000	2,000	3,000
Mendocino										
Merced	93	1,300	210	6,700	25	900			1,430	1,720

Mono										
Monterey	380	7,600	346	84,400			4	200	5,780	11,560
Napa	60		40	8,000					5,000	7,500
Nevada										
Placer			92	14,006					6,481	5,608
Plumas										
Sacramento	4	504	227	13,000	220	27,335			15,441	11,772
San Bernardino										
San Diego										
San Francisco	37	750	200	19,150	4	400	48	2,200	1,140	1,750
San Joaquin	25	1,700	1,250	125,000	20	2,500	100	8,000	40,000	42,000
San Luis Obispo	2,000	70,000	500	5,000			100	1,200	3,000	9,000
San Mateo	400	20,000	2,000	200,000			100	1,400	10,000	8,500
Santa Barbara	730	22,000	250	2,500			16	200	300	800
Santa Clara	100	2,500	650	64,000					20,000	30,000
Santa Cruz	1,697	33,589	550	77,299			6	190	3,450	6,440
Shasta										
Sierra			30	3,000			2	160	12,000	24,000
Siskiyou	30		350	7,000					9,900	19,800
Solano										
Sonoma										
Stanislaus			10	2,000					3,000	2,500
Sutter		1,100		7,500		1,100			2,350	4,700
Tehama	62	849	62	8,975	12	665	3	275	3,158	2,195
Trinity			120	9,000					420	840
Tulare										
Tuolumne			380	1,500			2	100	1,500	4,361
Yolo										
Yuba			141	4,860			16	640	12,468	24,936
Totals	5,682	162,292	9,928	969,670	281	32,900	407	16,565	185,128	254,582

TABLE OF STATISTICS—Continued.

COUNTIES.	FLAX.		HEMP.		TOBACCO.		ALFALFA.		COTTON.		RICE.		CABBAGES—Pounds.
	Acres.	Pounds.	Acres.	Pounds.	Acres.	Pounds.	Acres.	Tons.	Acres.	Pounds.	Acres.	Pounds.	
Alameda													
Amador													
Butte													
Calaveras													
Colusa							65	98					
Contra Costa													
Del Norte													
El Dorado													
Fresno													
Humboldt													
Klamath													
Lake													
Los Angeles													
Marin					25	25,000							18,000
Mariposa													
Mendocino													
Merced							40	75					

Mono													
Monterey	1				15	1,200	4,820	7,230					40,000
Napa					85	68,000	125	187					
Nevada													
Placer					8	8,000							
Plumas													
Sacramento					50	45,000	90	100					
San Bernardino													
San Diego													
San Francisco													
San Joaquin					25	25,000	50	75					
San Luis Obispo													
San Mateo													
Santa Barbara													
Santa Clara					40	40,000							
Santa Cruz	6												
Shasta													
Sierra													20,000
Siskiyou													
Solano													
Sonoma													
Stanislaus					50	40,000							10,000
Sutter					1	1,000							
Tehama					49	16,640	2		3–16	1,100			61,420
Trinity													
Tulare													
Tuolumne					½	500							31,500
Yolo													
Yuba					20	16,000							28,000
Totals	7				368½	286,340	5,192	7,767	3–16	1,100			208,920

TABLE OF STATISTICS—Continued.

COUNTIES.	Acres of Sugar Cane.....	Acres of Broom Corn.....	Pounds of Butter.....	Pounds of Cheese.....	Dozens of Eggs.....	Pounds of Wool.....	Bee Hives.....	Pounds of Honey.....
Alameda.....	.....	.....	.....	.....	.....	.....	.....	.....
Amador.....	.....	.....	.....	.....	.....	.....	.....	.....
Butte.....	.....	.....	60,000	5,000	40,000	150,000	400	4,000
Calaveras.....	.....	.....	.....	.....	.....	.....	.....	.....
Colusa.....	.....	96	40,000	.....	23,700	122,370	870	.....
Contra Costa.....	.....	.....	.....	.....	.....	.....	.....	.....
Del Norte.....	.....	.....	.....	.....	.....	.....	50	75
El Dorado.....	.....	.....	.....	.....	.....	.....	.....	.....
Fresno.....	.....	.....	.....	.....	.....	.....	.....	.....
Humboldt.....	.....	.....	21,610	1,900	8,630	1,000	205	359
Klamath.....	.....	.....	.....	.....	.....	.....	.....	.....
Lake.....	.....	.....	.....	.....	.....	.....	.....	.....
Los Angeles.....	.....	.....	.....	.....	.....	.....	.....	.....
Marin.....	.....	.....	200,000	600,000	9,000	25,000	130	6,000
Mariposa.....	.....	.....	2,500	500	20,000	10,000	30	1,500
Mendocino.....	.....	.....	.....	.....	.....	.....	.....	.....
Merced.....	.....	.....	7,360	50	5,690	215,780	430	4,000

Mono								
Monterey			15,000	28,400	10,450	128,450	340	900
Napa	4	25	55,000	2,500	35,000	20,000	1,000	
Nevada								
Placer			10,675		17,453	26,340	854	275
Plumas								
Sacramento		8	105,649	27,573	24,396	27,621	1,221	7,945
San Bernardino								
San Diego								
San Francisco			6,000	2,000			35	
San Joaquin	40	50	87,000	7,500	227,000		2,000	
San Luis Obispo			15,000	5,000	100	80,000	300	450
San Mateo			75,000	50,000	10,000			
Santa Barbara			2,500	3,000		300,000	150	800
Santa Clara		200	40,000	200,000		120,000		
Santa Cruz			47,515	39,380	31,767	10,500	325	500
Shasta								
Sierra			7,000	1,800			6	400
Siskiyou							75	
Solano								
Sonoma								
Stanislaus		10	2,000	1,500		35,000	500	10,500
Sutter	40	80	37,400		48,000	77,400	400	5,200
Tehama		1	15,212	1,210	18,058	141,990	240	3,270
Trinity			4,500	3,000	425		31	
Tulare								
Tuolumne			23,000		2,000		171	300
Yolo								
Yuba	14		8,438		16,842	93,600	884	8,840
Totals	98	470	888,359	980,313	584,511	1,585,051	10,647	55,414

TABLE OF STATISTICS—Continued.

COUNTIES.	LIVE STOCK.									
	Horses—American	Horses—Spanish (Tame).	Horses—Spanish (Wild)...	Horses—Total Number...	Mules	Asses	Cows	Calves	Stock Cattle	Beef Cattle
Alameda										
Amador										
Butte	2,150	1,800	700	4,650	1,418	100	6,105	2,800	4,150	1,500
Calaveras	459	1,584		2,043	529	137				
Colusa				6,327	923	4	6,350	6,110	18,550	
Contra Costa										
Del Norte	100	50		150	60		200	175	400	
El Dorado				3,003	1,341	41	2,792	1,012	2,831	
Fresno										
Humboldt	2,067			2,067	315	8	5,197	8,253		2,168
Klamath										
Lake										
Los Angeles										
Marin	476	1,540	1,752	3,768	84	3	8,300		19,850	1,200
Mariposa	250	800		1,050	250	75	1,100	800	2,500	2,000
Mendocino										
Merced				3,075	917	10				

Mono										
Monterey	480	1,575	13,048	15,103	86	21	2,512	2,512	61,210	
Napa				5,000	174	12	1,648	1,000	4,915	4,000
Nevada										
Placer				2,118	395	23	1,175	423	1,672	1,500
Plumas										
Sacramento	5,406			5,406	822	37	3,889	2,513	7,368	
San Bernardino										
San Diego				1,000						
San Francisco				4,500	410	270	5,210	712		
San Joaquin	4,800	4,950	4,000	13,750	1,600	40	8,000	5,950	45,000	550
San Luis Obispo	50	1,200	4,000	5,250	100	100	2,000		65,000	
San Mateo	550	1,450	570	2,570	60	40	2,500	1,000	2,800	2,000
Santa Barbara	50	1,650	6,000	7,700	89	46				
Santa Clara										
Santa Cruz	1,942			1,942	50		2,887	1,974	10,611	
Shasta										
Sierra	163	300		463	151		469	300	1,647	110
Siskiyou	815	1,219		2,034	100	800				
Solano										
Sonoma										
Stanislaus	300	600	200	1,100	100	3	3,500	3,000	13,000	600
Sutter	2,500	1,400	700	4,600	600	3			7,500	
Tehama	841	1,141	1,545	3,527	735	21	1,284	1,617	6,078	3,094
Trinity				200	225	3	186	94	234	87
Tulare										
Tuolumne	196	1,207		1,403	346	61	3,300	425	1,400	675
Yolo										
Yuba				4,864	2,180	8	2,841	1,630	8,540	841
Totals	23,595	22,466	32,515	78,576	14,060	1,866	71,445	42,400	285,256	20,325

TABLE OF STATISTICS—Continued.

COUNTIES.	LIVE STOCK—Continued.									
	Oxen	Total Number of Cattle.	Sheep	Goats	Hogs	Chickens	Turkeys	Ducks	Geese	Guinea Fowls
Alameda										
Amador										
Butte	400	14,955	48,000	250	30,500	52,000	3,000	200	180	
Calaveras		8,440	15,115		4,491	15,748				
Colusa	180	31,190	65,370	227	18,738	9,359	7,583	973	273	150
Contra Costa										
Del Norte	100	875	40	30	300	600	50	20		
El Dorado	1,270	7,905	1,742	640	3,100					
Fresno										
Humboldt	664	16,282	579	27	3,344	5,231	115	196	184	
Klamath										
Lake										
Los Angeles										
Marin	1,020	30,370	8,300		1,800	12,500	700	1,100	500	
Mariposa	500	16,900	5,700	150	4,000	12,000	6,000	150	65	
Mendocino										
Merced	40	63,700	87,000	700	7,635	5,700	580	110		

Mono										
Monterey	246	66,480	94,680	125	1,580	12,000	320	456	260	
Napa	422	11,985	12,000	100	4,000	12,000	1,000	750	175	
Nevada										
Placer	574	5,344	12,471	448	3,536	12,831	686	508	94	
Plumas										
Sacramento	862	14,632	11,836	473	4,957	23,857	6,434	1,129	234	120
San Bernardino										
San Diego		25,000	10,000	2,500						
San Francisco	220	6,142	3,240	450	8,249	7,500	450	3,140	900	
San Joaquin	1,600	61,100	25,000	1,200	64,000	25,000	6,000	2,500	1,200	100
San Luis Obispo	600	67,600	60,000	2,000	500	3,000	100	400		
San Mateo	800	9,100	2,500	200	1,600	1,200	800	500	400	
Santa Barbara		97,000	140,000	1,020	1,500	9,200	125	330	25	
Santa Clara										
Santa Cruz	820	16,292	2,400	361	2,400	8,246	128	648	127	
Shasta										
Sierra	384	2,910	480	24	576					
Siskiyou		12,000	3,000		5,000	15,000	1,800	200	100	
Solano										
Sonoma										
Stanislaus	100	20,200	18,000	100	2,500	2,000	200	50	50	
Sutter	700	8,200	22,000	85	6,150	17,000	4,010	535	200	
Tehama	605	12,678	31,185	64	7,075	17,778	3,103	831	110	
Trinity	140	741	63	27	187	4,320	28	73	23	
Tulare										
Tuolumne	125	6,325		905	600	1,500	100			
Yolo										
Yuba	624	14,476	23,434	224	8,320	32,628	9,482	1,628	380	
Totals	12,996	648,826	704,135	12,530	196,638	318,198	52,794	16,427	5,540	370

TABLE OF STATISTICS—Continued.

COUNTIES.	STOCK SLAUGHTERED.					
	CATTLE.		HOGS.		SHEEP.	
	Number.....	Value.....	Number.....	Value.....	Number.....	Value.....
Alameda						
Amador						
Butte	2,748		4,818		2,700	
Calaveras						
Colusa						
Contra Costa						
Del Norte						
El Dorado						
Fresno						
Humboldt	500		1,000		100	
Klamath						
Lake						
Los Angeles						
Marin	1,500		400		300	
Mariposa	7,500	$22,500	6,000	$24,000	5,000	$10,000
Mendocino						
Merced						

Mono						
Monterey	7,480	47,400	250	2,500	1,500	2,250
Napa						
Nevada						
Placer	5,305		2,365		4,758	
Plumas						
Sacramento						
San Bernardino						
San Diego						
San Francisco	38,400		27,240		58,290	
San Joaquin	4,800	50,000	2,800	20,000	4,500	8,000
San Luis Obispo	6,000		100		4,000	
San Mateo	1,900	15,000	500	2,500	1,500	3,000
Santa Barbara	8,000	32,000	100	100	5,000	5,000
Santa Clara						
Santa Cruz	1,215	14,580	1,044	9,400	825	2,075
Shasta						
Sierra						
Siskiyou	2,800	34,000	2,000	17,500	1,100	6,000
Solano						
Sonoma						
Stanislaus	600		200		500	
Sutter						
Tehama	724		3,298		856	
Trinity	1,437		746		436	
Tulare						
Tuolumne	1,320	6,600	400	2,000	300	
Yolo						
Yuba	6,828	68,280	4,480	18,920	6,420	12,840
Totals	99,057	$290,360	57,741	$96,920	98,085	$49,165

TABLE OF STATISTICS—Continued.

COUNTIES.	IMPROVEMENTS.							
	GRIST MILLS.							
	Number.....	Steam Power.....	Run of Stone.....	Value of Steam Mills.....	Water Power.....	Run of Stone.....	Value of Water Power Mills....	Bushels of Grain ground.....
Alameda								
Amador								
Butte	4	1		$10,000	3	7	$100,000	
Calaveras								
Colusa	1	1	2					
Contra Costa								
Del Norte								
El Dorado	2				2	4	3,000	18,200
Fresno								
Humboldt	4	2	2	8,000	2	2	3,000	10,000
Klamath								
Lake								
Los Angeles								
Marin								
Mariposa								
Mendocino								
Merced	4				4	8	9,000	29,000

Mono								
Monterey	3	3		6,500				
Napa	4	3	7	12,000	1	2	6,000	
Nevada								
Placer	2	1	2		1	2		4,000
Plumas								
Sacramento	6	4	13	108,000	2	10	85,000	
San Bernardino								
San Diego								
San Francisco	9	9						
San Joaquin	7	7	21	50,000				650,000
San Luis Obispo								
San Mateo	2	1	2	4,000	1	2	5,000	
Santa Barbara	2				2		1,000	
Santa Clara	10	7	14	50,000	3	5	35,000	130,000
Santa Cruz	6	1	3		5	9		700,000
Shasta								
Sierra								
Siskiyou	7	2	4	7,000	5	10	18,000	
Solano								
Sonoma								
Stanislaus					1	3	18,000	50,000
Sutter								
Tehama	4	1	6	7,000	3	6	34,000	160,000
Trinity	3				3	6	6,000	4,370
Tulare								
Tuolumne	9	2	4	5,100	7		12,000	
Yolo								
Yuba	7	5	18	28,800	2	5	5,000	
Totals	96	50	98	$296,400	47	81	$340,000	1,755,570

TABLE OF STATISTICS—Continued.

COUNTIES.	IMPROVEMENTS—Continued.					
	SAW MILLS.					
	Number.....	Value.....	Steam Power.....	Water Power.....	Number of feet of Lumber sawed.	Shingles.....
Alameda						
Amador						
Butte	19	$48,000	11	8	5,180,000	
Calaveras	12	20,600	7	5		
Colusa	2		1	1		
Contra Costa						
Del Norte	1			1	30,000	
El Dorado	36		24	12	18,900,000	
Fresno						
Humboldt	7		4	3	8,000,000	3,000,000
Klamath						
Lake						
Los Angeles						
Marin	2		2		11,705,500	
Mariposa	10	50,000	10		16,000,000	255,000
Mendocino						
Merced						

Mono						
Monterey	1			1		
Napa	4		2	2		
Nevada						
Placer	16		7	9	7,950,000	
Plumas						
Sacramento	1	4,000	1		600,000	
San Bernardino						
San Diego						
San Francisco						
San Joaquin						
San Luis Obispo						
San Mateo	6		6		4,500,000	18,000,000
Santa Barbara						
Santa Clara	10		3	7	9,500,000	
Santa Cruz	13		6	7	2,500,000	1,000,000
Shasta						
Sierra	22				7,000,000	
Siskiyou	12	36,000	1	11		
Solano						
Sonoma						
Stanislaus						
Sutter						
Tehama	1				300,000	
Trinity	6			6		630,000
Tulare						
Tuolumne	14		7	7	4,750,000	
Yolo						
Yuba	23		17	6	14,820,000	82,000
Totals	218	$158,600	109	86	111,735,500	229,967,000

TABLE OF STATISTICS—Continued.

COUNTIES.	IMPROVEMENTS—Continued.									
	QUARTZ MILLS.			MINING DITCHES.			FERRIES.		TOLL BRIDGES.	
	Number	Value	Number of tons of Quartz crushed	Number	Value	Miles in length	Number	Value	Number	Value
Alameda										
Amador										
Butte				8	$150,000	167	6	$30,000	3	$18,000
Calaveras	32	$48,300		58	157,550	594	6	3,400	4	13,500
Colusa							4			
Contra Costa										
Del Norte				2		11	1		2	
El Dorado	6			60		665			10	
Fresno										
Humboldt							3			
Klamath										
Lake										
Los Angeles										
Marin										
Mariposa	25	250,000	125,000	10		75	3			
Mendocino										
Merced							2	12,000		

Mono										
Monterey							2	1,000	1	5,000
Napa							1			
Nevada										
Placer	5		2,000	33	146,600	541			9	21,250
Plumas										
Sacramento				7		120	5		9	
San Bernardino										
San Diego	1	2,500								
San Francisco	3		1,500				2			
San Joaquin				1	500	4	7	10,000	3	20,000
San Luis Obispo										
San Mateo										
Santa Barbara										
Santa Clara										
Santa Cruz										
Shasta										
Sierra	8		30,000	40		130	2		3	
Siskiyou	4			14		219	4	6,000	1	1,000
Solano										
Sonoma										
Stanislaus				2		20	11	6,500	1	12,000
Sutter							8	6,000	1	25,000
Tehama				1		6	4		1	
Trinity				56	127		1		1	
Tulare										
Tuolumne	19	26,600		21	254,280	326	4	1,200	1	5,000
Yolo										
Yuba	4	17,800	17,800	14		110	2		12	
Totals	107	$345,200	176,300	327	$709,057	2,988	78	$76,100	62	$120,750

TABLE OF STATISTICS—Continued.

COUNTIES.	IMPROVEMENTS—Continued.								
	TURNPIKE ROADS.					RAILROADS.			
	Number	Miles in Length	Cost	Income	Cost of Repairs	Number	Miles in Length	Cost	Income
Alameda									
Amador									
Butte									
Calaveras	1								
Colusa									
Contra Costa									
Del Norte	1	50	$50,000						
El Dorado	17	125							
Fresno									
Humboldt						1	2¼	$20,000	
Klamath									
Lake									
Los Angeles									
Marin									
Mariposa	4	20	40,000	$7,000	$2,000	1	4	50,000	
Mendocino									
Merced	1		1,500						

Mono									
Monterey									
Napa									
Nevada									
Placer	10	42	39,700			3	30		
Plumas									
Sacramento						5	39	2,000,000	
San Bernardino									
San Diego									
San Francisco	3	14				4	20		
San Joaquin									
San Luis Obispo									
San Mateo						1	23		
Santa Barbara									
Santa Clara	6	33	57,000			1	17		
Santa Cruz									
Shasta									
Sierra	3	79	120,000						
Siskiyou	3	9							
Solano									
Sonoma									
Stanislaus									
Sutter									
Tehama									
Trinity	2	15							
Tulare									
Tuolumne									
Yolo									
Yuba	6	104				1	12	256,000	
Totals	57	491	$308,200	$7,000	$2,000	17	147¼	$2,326,000	

TABLE OF STATISTICS—Continued.

COUNTIES.	HORTICULTURAL PRODUCTS—NUMBER OF TREES AND VINES.							
	Apple	Peach	Pear	Plum	Cherry	Nectarine	Quince	Apricot
Alameda								
Amador								
Butte	20,000	150,000	7,000	2,000	1,000	6,500	350	3,128
Calaveras	29,844	22,181	5,480	2,887	1,179			1,377
Colusa	17,300	31,280	2,640	2,400	2,360	1,230	85	791
Contra Costa								
Del Norte	2,000	100	1,000	200	300		10	10
El Dorado	8,100	44,310	9,700	5,990	1,495	874	1,141	1,310
Fresno								
Humboldt	26,719	1,076	626	1,229	415		188	40
Klamath								
Lake								
Los Angeles								
Marin	3,550	932	363	402	150		350	146
Mariposa	400	14,000	500	1,700	205	382	110	275
Mendocino								
Merced	4,480	5,200	1,853	325	90	130	52	195

Mono								
Monterey	1,275	420	740	284	128		18	65
Napa	100,000	60,000	15,000	4,000	5,000	1,000	1,200	1,800
Nevada								
Placer	36,938	33,727	8,168	3,710	1,892	851	1,514	816
Plumas								
Sacramento	76,563	82,480	18,488	5,962	3,748	1,826	3,692	3,469
San Bernardino								
San Diego								
San Francisco								
San Joaquin	25,000	19,200	17,150	12,000	1,400	800	450	1,500
San Luis Obispo	5,000	4,000	1,500	300	100		50	200
San Mateo	11,000	3,800	3,200	1,500	1,000		400	450
Santa Barbara	1,400	1,600	1,100	300	280	910	300	950
Santa Clara	165,000	50,000	44,500	9,900	5,500	750	3,500	3,100
Santa Cruz	36,945	4,017	3,440	2,400	1,260	120	260	571
Shasta								
Sierra	2,850	3,000	500	100	100	50		120
Siskiyou	4,000	2,000		900	500	90	16	45
Solano								
Sonoma								
Stanislaus	1,500	2,500	200	125	100			150
Sutter	1,260	13,000	3,000	2,000	780	475	280	900
Tehama	7,173	18,757	1,626	917	314	584	109	669
Trinity	6,000	3,500	1,420	285	120	20	56	37
Tulare								
Tuolumne	54,910	78,005	15,203	1,283	861	523	241	746
Yolo								
Yuba	38,650	84,624	8,400	4,820	4,500	8,280	1,400	6,800
Totals	687,857	733,709	172,797	67,919	34,777	25,395	15,772	28,660

Table of Statistics—Continued.

COUNTIES.	HORTICULTURAL PRODUCTS.—NUMBER OF TREES AND VINES—Continued.													
	Fig	Aloe	Citron	Lemon	Orange	Olive	Pomegranate	Pine Apple	Prune	Persimmon	Pecan	Cherimoya	Almond	Walnut
Alameda														
Amador														
Butte	1,118			100	75								195	
Calaveras														
Colusa	125												297	
Contra Costa														
Del Norte											10			10
El Dorado	455												465	
Fresno														
Humboldt														
Klamath														
Lake														
Los Angeles														
Marin	75													
Mariposa	175						28						39	
Mendocino														
Merced	157				5		8						15	7

Mono														
Monterey	12					16							26	21
Napa	750			25	20	3	70		25				1,031	1,000
Nevada														
Placer	803			19	19	50	6						359	86
Plumas														
Sacramento	2,245			56	88		626				15		890	505
San Bernardino														
San Diego														
San Francisco														
San Joaquin	800				7	5	11						50	300
San Luis Obispo	10					20								
San Mateo	75													300
Santa Barbara	630			310	320	1,300	430						510	200
Santa Clara	500			10	400	55	110						670	950
Santa Cruz	112			1	4	4							32	48
Shasta														
Sierra														
Siskiyou														
Solano														
Sonoma														
Stanislaus	100													
Sutter	6,000												380	300
Tehama	331			1	2	3	2						73	47
Trinity	5												2	
Tulare														
Tuolumne	501			24	32								106	10
Yolo														
Yuba	840			20	42	12	48				14		300	208
Totals	15,819			566	1,014	1,468	1,339		25		39		5,431	3,992

TABLE OF STATISTICS—Continued.

COUNTIES.	HORTICULTURAL PRODUCTS.—NUMBER OF TREES AND VINES—Continued.								
	Filbert	Gooseberry	Raspberry	Strawberry	Grape	Tons of Grapes	Gallons of Wine	Gallons of Brandy	Value of Fruit
Alameda									
Amador									
Butte		2,085	2,200	400,000	325,000	205	1,025		
Calaveras					362,463				
Colusa		88			48,469				
Contra Costa									
Del Norte		1,000	5,000						
El Dorado					794,535				
Fresno									
Humboldt		6,856	3,402	15,800	313				$2,785
Klamath									
Lake									
Los Angeles									
Marin					23,000	40			20,000
Mariposa		150	3,500	100,000	18,000	195	15,500	700	20,000
Mendocino									
Merced		150	62	2,856	56,307				10,000

Mono									
Monterey		2,450	650	10,450	25,000		250	175	4,500
Napa		7,000	10,000	1,000	600,000		3,000	500	
Nevada									
Placer		2,747	36,646	123,080	255,196		3,200		
Plumas									
Sacramento		4,040	13,136	36,276	430,799		10,790		
San Bernardino									
San Diego									
San Francisco									
San Joaquin		3,000	17,000	100,000	350,000				
San Luis Obispo									
San Mateo					5,500				
Santa Barbara		210	580	650	100,000		2,140	231	
Santa Clara		4,900	600	150,000	750,000		8,200	550	30,000
Santa Cruz		3,800	2,384	30,000	53,632	42			11,289
Shasta									
Sierra					6,400	1			12,500
Siskiyou									
Solano									
Sonoma									
Stanislaus		200	200	2,000		20,000	500		7,000
Sutter					28,000		5,000	500	
Tehama		378	329	17,186	40,739	28	3,000	770	7,515
Trinity		374	163	22,674	733				2,720
Tulare									
Tuolumne			300	19,000	914,630		10,300	700	
Yolo									
Yuba		3,680	3,850	250,860	850,420				
Totals		43,108	99,992	1,281,832	6,039,136	20,511	63,205	4,126	$128,309

TABLE OF STATISTICS—Continued.

COUNTIES.	ASSESSED VALUE OF PROPERTY.				INCREASE OR DECREASE IN VALUE OF PROPERTY.		
	Real Estate.....	Improvements...	Personal Property..... ...	Total Valuation of Property...	Assessed value of Property, 1862	Increase.....	Decrease .....
Alameda*	$2,783,484	.....	$1,020,756	$3,804,240	$4,100,000	.....	$295,760
Amador*.....	1,256,549	.....	1,142,434	2,398,983	2,187,708	$211,275	.....
Butte	1,771,065	.....	1,768,549	3,539,614	2,950,551	589,063	.....
Calaveras	1,171,489	.....	1,279,379	2,450,868	5,248,624	.....	2,797,756
Colusa	.....	.....	.....	2,593,875	2,643,809	.....	49,934
Contra Costa*.....	1,018,730	.....	723,762	1,742,492	1,840,000	.....	97,508
Del Norte	54,670	$101,064	161,531	317,265	300,435	16,830	.....
El Dorado.....	436,015	1,264,655	1,604,110	3,304,780	3,864,449	.....	559,669
Fresno*.....	245,569	.....	557,924	803,493	962,985	.....	159,492
Humboldt.....	283,645	271,090	570,965	1,125,700	1,352,790	.....	227,090
Klamath*	96.000	.....	128,620	224,620	291,645	.....	67,025
Lake*.....	89,755	.....	160,894	250,649	313,246	.....	62,597
Los Angeles*.....	742,881	.....	879,489	1,623,370	3,065,330	.....	1,441,960
Marin.....	1,098,083	.....	637,086	1,735,169	1,817,553	.....	82,384
Mariposa	150,000	556,530	733,312	1,439,842	1,536,330	.....	96,488
Mendocino*	.....	.....	.....	1,161,773	1,165,502	.....	3,729
Merced.....	312,178	531,178	.....	843,356	966,221	....	122,865
Mono*	325,890	.....	206,060	531,950	310,896	221,054	.....
Monterey.....	399,060	185,460	810,540	1,395,060	1,297,422	97,638	.....
Napa.....	1,689,307	835,623	.....	2,524,930	2,937,760	.....	412,830

Nevada*	2,146,995	.....	1,513,618	3,660,613	5,055,370	.....	1,394,757
Placer	601,228	624,833	1,845,851	3,071,912	3,225,248	.....	153,336
Plumas*	81,066	.....	1,121,422	1,202,488	1,070,000	132,488	.....
Sacramento	5,043,650	705,445	3,826,300	9,575,395	8,820,018	755,377	.....
San Bernardino*	158,800	.....	211,988	370,788	417,238	.....	46,450
San Diego	.....	.....	.....	431,989	471,806	.....	39,817
San Francisco	43,135,307	.....	20,920,043	64,055,350	66,531,207	.....	2,475,857
San Joaquin	2,932,508	17,625	2,042,359	4,992,492	4,670,194	322,298	.....
San Luis Obispo	130,806	80,000	402,876	613,686	512,742	100,944	.....
San Mateo	1,719,650	32,260	551,028	2,302,938	2,165,366	137,572	.....
Santa Barbara	407,000	.....	333,000	740,000	819,405	.....	79,405
Santa Clara	2,650,145	1,503,150	1,975,717	6,129,012	6,038,375	90,637	.....
Santa Cruz	671,964	.....	386,708	1,058,672	1,086,918	.....	28,246
Shasta*	408,439	.....	680,263	1,088,702	1,364,998	.....	276,296
Sierra	1,100,285	.....	1,424,121	2,524,406	1,159,205	1,365,201	.....
Siskiyou	514,760	.....	983,432	1,498,192	1,653,000	.....	154,808
Solano*	2,148,264	.....	1,547,779	3,696,043	3,601,171	94,872	.....
Sonoma*	2,049,095	.....	1,628,921	3,678,016	3,990,677	.....	312,661
Stanislaus	275,395	45,286	442,531	763,212	768,058	.....	4,846
Sutter	705,395	352,680	855,419	1,913,759	1,946,076	.....	32,317
Tehama	354,272	315,072	883,074	1,552,398	2,013,749	.....	461,351
Trinity	.....	322,506	539,622	861,128	1,166,414	.....	305,286
Tulare*	308,981	.....	1,077,435	1,085,982	1,266,488	.....	180,506
Tuolumne	766,592	143,125	957,325	1,867,042	2,742,450	.....	875,408
Yolo*	.....	.....	.....	2,458,067	2,322,975	135,092	.....
Yuba	1,062,862	1,427,805	1,994,525	4,485,192	6,187,773	.....	1,702,581
Totals	.....	.....	.....	.....	.....	$4,270,341	$15,001,015
							4,270,341
Total Decrease	.....	.....	.....	.....	.....	.....	$10,530,674

* No report received; figures taken from reports to the Controller.

The preceding tables are taken from the Surveyor-General's annual report. It is a sufficient commentary on their correctness and the efficiency of the system by which they are collected, to state the fact that seventeen counties of the State are not represented in them at all, and others but partially. Of these tables, and of those previously compiled from the same source, and of the system of collecting them, that officer very correctly remarks:

"An examination of the previous tables, as well as the present, will show that there is a defect in the system, and that the end sought is not attained. There are no means of securing correct returns, or perhaps any returns, from the County Assessors. A few of these officers seem to appreciate the importance of these returns, and the sheets bear evidence of careful and intelligent labor; but very many evidently regard their preparation as a useless task, unnecessarily imposed, and appear to think that a few figures, seemingly set down almost at random, will suffice, never reflecting what effect these careless, imperfect statements may have upon a report which is to be the source of all the knowledge we can have of the condition of the State.

"When a return is incorrect or imperfect, its effect is to depreciate the county from which it comes. When any of those multitudes so constantly pouring into the State desire to select their place of abode, will they choose that county whose average yield per acre seems so very small, whose large fruit crop is valueless, whose vines are barren, or whose cattle give back nothing to the dairyman? Let it not be supposed that these people know nothing of and care nothing for statistics. Many of them do both understand and appreciate these sources of information, and have been used to consult them; and when they have not done so directly, they have obtained advice based upon them. It should be remembered that these tables are compiled and published under authority of the State, and form part of its records; that, as a part of the Appendix to the Journal of the Senate, they go to other States, and find place in their libraries; that there, as the sole accessible and presumedly reliable authorities, they may be consulted, and form the basis of published articles, which, widely circulated, may influence many minds.

"Much labor is necessary in the preparation of these tables, and it is with regret that I add that I cannot commend them to public confidence. I have endeavored to amend evident errors, or supplied omissions; have stated average values, when fuller statements from neighboring counties have given me the means of making them without great probable variation from the truth. Without this labor, the tables would be absolutely worthless; with it, they are only imperfect approximations; and, surely, this is not what the law and the interests of the State demand. The only remedy I have to propose is the passage of an Act making the necessary appropriation, and authorizing the payment of a premium to each County Assessor who shall present a full report at the required time."

TABLE,

Showing the Annual Amount of Rain at Sacramento, in inches and tenths, the Annual Assessment of Real and Personal Property in the State, and the Annual Receipts into the State Treasury, as collected upon the property thus assessed, and all other sources, from 1850 *to* 1863, *inclusive.*

Years.	Rainfall.	Assessment.	Receipts.
1850	36.000	$57,670,689 00	$330,796 05
1851	4.730	49,231,052 00	366,825 07
1852	17.980	64,579,375 00	454,985 84
1853	36.362	95,335,646 00	1,022,647 32
1854	20.068	111,191,630 00	1,155,537 10
1855	18.620	103,887,193 55	723,289 83
1856	13.770	95,007,440 97	799,794 99
1857	10.443	126,059,461 82	1,215,128 61
1858	15.003	123,955,877 00	1,184,221 79
1859	16.021	131,060,279 49	1,198,581 81
1860	22.107	148,193,540 02	1,292,718 63
1861	16.097	147,811,717 16	1,031,529 08
1862	35.549	160,369,071 81	1,626,278 58
1863	11.438	147,104,955 07	2,464,807 01

The foregoing table exhibits the general increase of the State in material wealth in a more reliable manner than any reports of our productions, as now made by the Assessors to the Surveyor-General. In the actual assessment, every piece of property is looked at and valued, and is represented in the above figures from year to year; while the reports of the productions to the Surveyor-General, as that officer remarks, are regarded by many of the Assessors "as a useless task unnecessarily imposed, and they appear to think that a few figures, seemingly set down almost at random, will suffice," and they are, therefore, very incomplete and unreliable.

By a glance at the above table it may also be seen to what extent the prosperity of the State has heretofore been dependent on the seasons. The valuation of the property, and the receipts into the State Treasury dependent on that valuation, running high or low as the seasons have been wet or dry—so that the table of rainfall has been as a barometer to the State's prosperity. We have endeavored to show, in a preceding article, under the head of "Comparative Climate and Grain Farming in California," that the effect of the dry seasons upon the agricultural prosperity of the State may, to a very great extent, be overcome by adopting a different system of cultivating the soil, and we would now call particular attention to the above table, as indicating in a very forcible manner the extent of the direct and immediate interest the State has in providing the means for the collection and diffusion of correct and practical information upon our agricultural and all other industrial pursuits.

STATISTICS, INTERESTING AND INSTRUCTIVE TO FARMERS.

COMPILED FROM THE MERCANTILE GAZETTE.

TABLES,

Showing the Imports and Exports of Wines for the past two years.

Imports.	1862.	1863.
Hogsheads	5	20
Pipes	219	21
Casks (sixty gallon)	16,806	5,444
Half casks	1,073	830
Quarter casks	4,724	1,600
Barrels	234	72
Octaves	1,419	432
Baskets	16,568	31,257
Cases	103,188	48,640

Exports.	1862.	1863.
Pipes and casks	871	856
Half casks	11	92
Quarter casks	228	71
Barrels	256	151
Octaves	33	128
Kegs	68	69
Cases	6,159	8,994
Baskets	1,645	2,235
Packages	341	23

A decreasing import and an increasing export trade will be observed. This is as it should be.

The following table is of interest, as showing the increase of the wool product of the State since eighteen hundred and fifty-five :

PRODUCT OF WOOL FOR EACH YEAR FROM 1855 TO 1863, INCLUSIVE.

Years.	Pounds.	Increase per cent.
Eighteen hundred and fifty-five	360,000	.....
Eighteen hundred and fifty-six	600,000	66
Eighteen hundred and fifty-seven	1,100,000	83
Eighteen hundred and fifty-eight	1,428,000	30
Eighteen hundred and fifty-nine	2,378,000	66
Eighteen hundred and sixty	3,260,000	37
Eighteen hundred and sixty-one	4,600,000	41
Eighteen hundred and sixty-two	6,400,000	40
Eighteen hundred and sixty-three	7,600,000	19

The following table shows the value of the different articles of California production exported from the State during each of the last three years:

Articles.	1861.	1862.	1863.
Barley	$361,452	$131,282	$65,044
Beans	10,214	40,599	11,608
Bones	1,984	5,400	171
Bran	1,131	3,061	1,871
Bread	64,892	69,805	65,290
Copper Ore	135,240	370,200	719,300
Fish	21,828	21,868	11,285
Flour	858,425	688,234	767,270
Glue	7,320	1,240	930
Hay	4,683	10,998	11,914
Hides	444,995	947,253	924,567
Horns	2,350	2,484	1,807
Leather	3,605	11,040	3,773
Limes	357	968	2,463
Lumber	69,931	149,560	123,084
Mustard Seed	1,857	2,417	11,230
Oats	156,879	72,045	130,600
Potatoes	23,016	12,936	21,828
Quicksilver	1,079,850	1,138,961	1,073,078
Skins	36,652	25,011	56,338
Silver Ore	211,345	34,740	118,109
Tallow	35,658	37,740	80,170
Wheat	2,702,434	1,372,572	1,754,116
Wine	8,000	25,836	80,141
Wool	519,577	1,009,194	1,119,098
Sundries of Manufacture	27,145	23,843	45,565
Sundries of Agriculture	4,936	2,496	7,637
Totals	$6,795,758	$6,211,788	$7,208,289

Among the articles which show the greatest increase of export value, will be noticed copper ore, wool, and wine.

The copper mining business of our State is but in its infancy, yet the respectable value and rapid increase of our annual exports foreshadow for it a leading position in our export trade, and the extensive preparations for smelting the ores within our State shows the confidence of our people in the future importance of this branch of mining.

In addition to the value of wool exported, it may be remarked that two establishments at San Francisco—the Mission Mills and San Francisco Company's Factory—have purchased for their own manufacture this year two million and fifty thousand pounds, and there is estimated to be five hundred thousand pounds still in the country.

While our commercial transactions show a rapid increase in the exports of native wines, they also show a corresponding decrease of imports of foreign wines; from which it is seen that we are not only supplying an increasing proportion of an increasing home consumption, but are also answering a largely and rapidly increasing foreign demand; facts going to prove, what had been generally remarked by those interested in the matter, that our native wines are in growing favor, both for home and foreign consumption. The quality is generally approved, age only being wanted. Our product is rapidly increasing, and will soon assume such proportions as will enable us to supply the entire demand for home consumption, and largely increase our export trade—a consummation much to be desired for two very important reasons:

First—Because it will, to that extent, check the export of our gold and silver, and put it in circulation among our own people, thus contributing to the comforts of the people themselves, and enhancing the taxable property of the State.

Second—Because it will contribute much to the health and temperance habits of our people.

It is truthfully and timely remarked by our Superintendent of the National Census Bureau, in his preliminary report of the eighth census, while speaking of the product of wines in the United States, that "more than four million dollars was paid by citizens of the United States, in eighteen hundred and fifty-nine, for imported wines. The amount paid by consumers for a fictitious homemade article, it is perhaps impossible to ascertain. A good native wine may and should at once take the place of the spurious article, and, in a few years, of a large part of the imported. This is the more desirable, inasmuch as the disease which so seriously affects the vineyards of Europe greatly diminishes the quantity and increases the price of good wine, and at the same time tempts producers to practice extensive adulterations. Nothing will effect a substantial temperance reform so certainly and speedily as the production of good wines, in such quantity as to place them within the means of the poor as well as the rich; and every man who plants a vine will be a useful co-operator in the beneficent work of relieving the country from the evils of intemperance, by the substitution of a healthy beverage for the various forms of poisons which take the name of spirits, and concentrate and diffuse misery over the land."

The following table shows the destination of the above exports, and the quantity shipped to each place or country. One of the most striking features noticeable is the certain and steady decline of our exports to Great Britain and Australia, and the no less steady increase to our Atlantic ports, to the coastwise countries north and south of us, and more especially the rapid increase to China. The latter fact presents a pow-

erful argument in favor of the establishment of a steamship line to that country, and calls for the consideration of the matter by the Government. With proper management, the increased demand for our staple products in the Chinese and Japanese countries will insure for California a constant and remunerative market for all her surplus products.

For some years to come we must also supply, in addition to an increased home demand in our own mines, the greater portion of necessaries consumed in Nevada Territory. These facts present no mean prospect for the California farmer:

Where to.	1861.	1862.	1863.
New York and Boston	$1,283,381	$2,465,831	$2,879,897
Great Britain	2,744,537	1,296,889	1,620,812
Australia	1,078,118	287,975	398,417
China	566,860	589,907	1,010,031
Mexico	453,953	539,927	560,312
Peru	158,774	216,276	162,094
Hawaiian Islands	42,527	47,135	66,930
British Columbia	71,315	373,611	260,746
Other countries	396,283	394,237	249,449
Totals	$6,795,758	$6,211,788	$7,208,289

Including our exports of treasure, the entire exports of the productions of the State, during the past three years, may be classified as follows:

Class of Exports.	1861.	1862.	1863.
Products of the mine	$42,103,193	$44,105,662	$47,982,398
Products of agriculture	3,265,471	1,645,350	2,013,975
Products of the herd	1,041,217	2,027,082	2,182,155
Products of the forest	69,931	149,560	134,086
Products of the sea	21,828	21,868	11,285
Products of manufacture	962,876	798,191	873,854
Products of the vine	8,000	25,836	81,456
Totals	$47,472,217	$48,773,549	$53,280,209

The above would be a very gratifying exhibit but for the fact that so large a portion of it is the product of the mine, much of which is exported to pay for articles imported which we should produce within our own borders. Take, for instance, the article of butter. It would seem that with the number of stock we have in our State we ought to very nearly supply our market with that article, and yet the facts are that we have imported during the year eighteen hundred and sixty-three, seventy-two thousand two hundred and forty firkins, at one hundred pounds each, making seven million two hundred and tweny-four thousand

pounds. This, at the average price per pound at San Francisco, (see the following table,) twenty-four and one third cents, was worth the handsome sum of one million seven hundred and fifty-seven thousand eight hundred and forty dollars. And very nearly that sum in money has been exported to pay for the same, thus taking that amount from circulation among the farmers of California in one year. They should have produced this butter and received this money, and thus added it to the wealth of the State, and we hope they will take steps to secure it as soon as possible hereafter. There are many other articles, such as hops, tobacco, cigars, almonds, raisins, figs, and prunes, with which a similar illustration may be made, and to which a similar remark may be applied. The importance of this subject of producing for our own consumption many articles now imported is not sufficiently appreciated.

Major Adlum, who introduced into notice the Catawba grape, and induced its extensive cultivation in the United States, very truthfully remarked, in a letter to Nicholas Longworth, its most successful cultivator: "In bringing this grape into public notice I have rendered my country a greater service than I could have done had I paid off the National debt."

So of the man who shall bring into proper notice and cultivation in California the fig, the prune, and the raisin. He will have done the State a greater service than he could have done by paying off her public debt. We are fully convinced, from experience and observation, that there is no country in the world better adapted in every way to their successful production than California. And to appreciate the economical importance of their production by us we have only to refer to facts of commerce: There were imported into the United States in the year eighteen hundred and sixty, six millions thirty-two thousand five hundred and sixteen pounds of figs, at a cost of two hundred and forty-five thousand seven hundred and forty dollars; one million nine hundred and ten thousand eight hundred and fifty-two pounds of prunes, costing one hundred and forty-nine thousand four hundred and ninety-two dollars; and thirty-two millions one hundred and eleven thousand two hundred and ninety-two pounds of raisins, costing one million nine hundred and twenty-three thousand seven hundred and forty-six dollars, making a total cost of these fruits of two millions three hundred and eighteen thousand nine hundred and seventy-eight dollars, for which money or its equivalent had to be exported from the United States. California came in for her proportion, and, though we cannot give the exact figures, we know this was relatively a large one, and our gold went to pay for it. In a few years, by proper exertion our orchardists and vine growers may not only supply our own demand, but that of the whole country, and reap this golden harvest.

AVERAGE PRICES

Of certain Leading Articles of Merchandise for every Month during 1863, *and the Average for the whole Year.*

ARTICLES.	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	October.	Nov.	Dec.	Average for Year.
Bread, Pilot, ₩ lb	4 3/4	4 1/3	4 1/4	4 1/2	4 1/4	4 1/4	4 5/8	4 5/8	4 5/8	4 3/8	4 1/3	4 3/4	4 1/4
Candles, Adamantine, ₩ lb	17 5/8	17 1/2	17	17	16 7/8	16 5/8	18 3/4	17 1/2	18	17 3/4	17 1/3	17	17 1/2
Coffee, Rio, ₩ lb	30	29 3/4	28 1/2	23 1/3	23 3/4	26 1/3	28 1/2	29	29 1/2	29 1/2	24 3/4	23	27 1/3
Cement, ₩ bbl	3 50	3 33 1/3	2 93 3/4	3 00	2 75	2 50	2 50	2 50	2 50	2 50	2 83 1/3	3 00	2 82
Coal, Anthracite, ₩ ton	16 83 1/3	16 00	15 50	13 50	13 66 2/3	14 50	17 83 1/3	21 00	23 00	23 83 1/3	25 50	26 00	18 93
Drilling, Bro., ₩ yard	18	18 3/4	20	20	21	21 1/4	20	21 1/2	22 1/2	20 7/8	21 3/4	23	20 3/4
Dried Apples, ₩ lb	7 7/8	7	6 3/4	6 1/3	7	6 3/4	7 3/4	7 5/8	7 5/8	7 5/8	8	7 3/4	7 1/3
Flour, California, ₩ bbl	5 33 1/3	5 37 1/2	5 25	5 00	5 00	5 00	5 00	4 69 7/8	4 61	4 62 1/2	4 45 3/4	4 35	4 89
GRAIN—Wheat, ₩ 100 lbs	1 70	1 80	1 76 1/4	1 58 1/3	1 65	1 65	1 61 2/3	1 45	1 34 1/3	1 28 1/2	1 23	1 30	1 53
Barley, ₩ 100 lbs	2 25	2 20	1 93 3/4	1 59 1/2	1 51 1/3	1 66 2/3	1 65	1 42 1/2	1 37 1/2	1 36 2/3	1 42 1/2	1 45	1 65 1/2
Oats, ₩ 100 lbs	3 06	3 08 1/3	2 87 1/2	2 50	2 30 7/8	2 87 1/2	2 46	1 67 1/2	1 78 1/3	1 63 1/3	1 55	1 50	2 27 1/3
Corn, ₩ 100 lbs	2 00	2 25	2 25	2 25	2 00	1 75	1 70	1 60	1 83 1/3	2 00	1 40	1 38	1 86 3/4
Gunny Bags, in bales, each	15	15	14	16	17 1/4	19	20 3/4	21	20 3/4	20	20 3/4	20 1/2	18 1/3
Hay, ₩ ton	18 33	15 33	14 25	12 75	14 00	15 33	12 66	14 66	15 08	15 50	16 17	17 50	15 13
Hops, Eastern, ₩ lb	16 1/3	16	16	14 7/8	12 1/2	12 1/2	13 1/3	10	10	10	20 7/8	36 3/4	15 3/4
Iron, Scotch Pig, ₩ ton	42 50	48 33	48 12	46 66	44 17	44 17	47 50	50 87	50 00	48 33	45 87	46 67	46 93
Lumber, Humboldt, ₩ M	18 50	20 00	19 00	18 33	17 50	16 87	17 00	16 00	16 00	16 00	17 33	19 67	17 68
Nails, Cut, ₩ lb	4	4	4	4	4	4	4 2/3	5	5	5	4 1/2	4 1/2	4 3/8
PROVISIONS—Beef, Mess, ₩ bbl	10 50	10 50	10 50	10 50	10 50	10 50	10 50	10 50	10 50	10 50	10 50	10 50	10 50
Pork, Mess, ₩ bbl	14 33	14 33	14 00	14 00	14 00	15 00	20 75	23 00	23 33	24 33	26 00	25 67	19 06
Pork, Clear, ₩ bbl	15 33 1/3	16 00	16 00	16 00	16 00	16 00	22 66 2/3	24 00	26 00	28 66 2/3	30 00	28 33 1/3	21 25
Bacon, Eastern, ₩ lb	14	14	14	14	16	16 1/2	14 1/3	13	13	13 1/2	13 1/2	12 1/2	14
Hams, Billings, ₩ lb	17 1/2	17 1/2	17 1/2	17 1/2	17 1/2	17 7/8	18	18	20	20	20	20	18 1/2
Butter, ₩ lb	20	20	23	21	20	18 7/8	19 3/4	19 5/8	20 1/2	24 1/4	28	28	24 1/2
Lard, Cases, ₩ lb	12 1/8	12 1/4	12 1/4	12 1/4	12 1/4	12 1/4	12 1/3	13 3/8	15	15 7/8	16	16	13 1/2
Cheese, Eastern, ₩ lb	13 1/2	12 1/4	10	10 3/3	11	11	11	11	11	11	12	12	11 3/8
Rice, No. 1, China, ₩ lb	5 7/8	5 3/4	5 1/2	5 3/3	5 7/8	5 1/2	5 1/2	5 1/2	5 1/2	5 1/4	4 7/8	5	5 1/2
Salt, Carmen Island, ₩ ton	18 00	12 50	12 50	13 00	13 33	15 56	18 00	18 00	15 00	13 66	12 33	10 67	14 39
SPIRITS—Alchohol, in bbls, ₩ gal	69 1/8	78 1/4	78	82 7/8	81 2/3	81 2/3	87 1/2	92 7/8	96 2/3	1 05	1 05	1 09	89
Brandy, American, ₩ gal	47 1/2	54 1/2	55	56 1/2	56 1/2	56 1/2	60	60	61 2/3	65	65	65 7/8	58 2/3
Pure Spirits, American, ₩ gal	38 1/3	42 1/2	43	48 3/2	45 7/8	43 1/3	46 2/3	48 3/4	50	59 1/8	55	62 1/3	48 5/8
Whisky, American, ₩ gal	41	41 2/3	42 1/2	47	45 3/8	43 1/3	46 2/3	47 1/2	50 1/3	55	55	60 3/8	48
Rum, N. E. ₩ gal	43 1/3	47 2/3	49	48 3/4	50	45	50	50	50	60	62 1/2	66 3/3	52 1/8
Spirits Turpentine, ₩ gal	1 70	1 91	2 00	2 00	2 00	2 04	2 35	2 52 1/2	2 45	2 45	2 36 2/3	2 32 1/2	2 17 3/4
Sardines, half-bxs, ₩ doz	3 58 1/2	3 50	3 50	3 50	3 50	3 50	3 60	3 60	3 50 2/3	3 40	3 40	3 30	3 49 1/2
SUGAR—No. 1, China, ₩ lb	10	10	9 7/8	9 3/4	9 3/4	9 7/8	10 1/8	11 1/4	11 7/8	12	12	12	10 3/4
New York, Crushed, ₩ lb	13 1/2	13 1/3	12 7/8	12 1/8	13 1/4	13 1/8	14 1/2	14 1/8	15 1/3	15 1/3	17 1/8	16	14 1/3
WINE—Claret, ₩ cask	42 00	42 00	42 00	42 00	42 00	42 00	42 00	42 00	42 00	42 00	42 00	42 00	42 00
Claret, ₩ case	3 33 1/3	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 50	3 48 1/3
WOOL—Native California, ₩ lb	15	14 1/3	12 1/2	12 7/8	13 3/4	12 7/8	12 1/2	12 1/2	12 1/2	12 3/8	11 1/4	11 1/4	12 7/8
American, ₩ lb	20	19 2/3	19	20	22	20 1/2	20 1/2	20 5/8	19 2/3	18 2/3	17 7/8	17 1/2	19 5/8

The above are wholesale prices at San Francisco, in gold and silver currency, and many of them assume an importance to the farmer, as furnishing a basis upon which to make his calculations for the future. A system by which the farmers of our State could be periodically, say once in two months, informed of the state of the crops and the ruling prices, would be of inestimable value to the agriculturist, and with the co-operation of the farmers, this Department will endeavor, in the coming year, to put such a system in successful operation.

INDEX.